

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

BEFORE THE WATER POLLUTION CONTROL
ADVISORY COUNCIL (WPCAC)

TRANSCRIPT OF PROCEEDINGS

Heard at Room 111, Metcalf Building
1520 East Sixth Avenue
Helena, Montana
February 17, 2012
10:00 a.m.

CHAIRMAN TREVOR SELCH; MEMBERS EARL SALLEY,
STEVIE NEUMAN, KAREN BUCKLIN-SANCHEZ, KATHLEEN
WILLIAMS, MICHAEL WENDLAND;
and MITCHELL LEU
(By telephone)

PREPARED BY: LAURIE CRUTCHER, RPR
COURT REPORTER, NOTARY PUBLIC
P.O. BOX 1192
HELENA, MT 59624
(406) 442-8262

1 WHEREUPON, the following proceedings were²
2 had:

3 * * * * *

4 CHAIRMAN SELCH: I'll call this meeting
5 to order at 10:00. It looks like we've got a
6 quorum with five of us here and Mitchell is on the
7 phone. I apologize for not being here last time.
8 I got a bad case of something at the time, but
9 thankfully Dude covered for me on the first day
10 there. Thanks for everyone that came. I know on
11 the agenda today we just have some briefing items,
12 and it's really great to have people in person. I
13 think it's good to be able to see them and
14 question. I appreciate for Mitchell calling in as
15 well.

16 So I guess at this point, looking at the
17 agenda, does anyone have anything to change on
18 that or add?

19 (No response)

20 CHAIRMAN SELCH: Hearing not, is there a
21 motion to approve the agenda.

22 MR. SALLEY: So moved.

23 MS. WILLIAMS: Second.

24 CHAIRMAN SELCH: The next item is the
25 approval of our minutes, and we have actually two

1 sets of minutes we need to approve because of some
2 modifications. The first one was back on November
3 3rd meetings, and there was a couple of things
4 that, Kathleen, you wanted in there. I read
5 through them, the additions that were put in
6 there. Do you think that's adequate?

7 MS. WILLIAMS: I wanted to thank the
8 staff for going back and doing that.

9 CHAIRMAN SELCH: Karen, you had a
10 question about depth as well, and I noticed
11 they've added some numbers in there. Was that
12 what you were looking for? It's on the third page
13 under fracking there.

14 MS. BUCKLIN-SANCHEZ: Yes.

15 CHAIRMAN SELCH: I just remember in the
16 notes, you had a question about the depth of the
17 -- I don't know if that was added later on or not.

18 MS. CRIDER: Mitchell clarified it for
19 me via email. So what you see in there is his
20 clarification.

21 CHAIRMAN SELCH: Okay. Does anyone have
22 any additional comments for the November 3rd
23 meeting minutes?

| | |
|----|---------------|
| 24 | (No response) |
|----|---------------|

25 CHAIRMAN SELCH: Hearing none --

1 MR. WENDLAND: Move we accept the
2 November meeting minutes as --

3 MS. BUCKLIN-SANCHEZ: Second.

4 CHAIRMAN SELCH: It's been moved. The
5 January 6th minutes, does anyone have any comments
6 or edits? That was a fairly brief meeting. It
7 sounds like we moved back one of meeting dates one
8 week in there, and everything else looked like it
9 was good to go. Motion to approve those minutes.

10 MS. WILLIAMS: So moved.

11 MR. SALLEY: Second.

12 CHAIRMAN SELCH: Excellent. So that
13 takes us into our briefing items for today.

14 MS. WILLIAMS: Do we need to vote?

15 CHAIRMAN SELCH: Sure.

16 (Response)

17 CHAIRMAN SELCH: Opposed.

18 (No response)

19 CHAIRMAN SELCH: Our first item here is
20 nutrient strategy, and we have Mike Suplee and
21 George Mathieus presenting that.

22 MR. MATHIEUS: Good morning. So for
23 those of you who don't know me, I'm George
24 Mathieus, I'm the Administrator of the Planning
25 and Prevention Assistance Division here at DEQ.

5
1 And just a qualifier, you guys can't ask me any
2 difficult questions because I'm a high level
3 manager and probably can't answer them.

4 What we're going to do today is just
5 kind of give you a briefing. I'm just providing
6 an introduction just showing everybody how all
7 those pieces and parts are tied together. So just
8 briefly, the Department has been working on
9 numeric nutrient water quality standards for over
10 ten years, and the key to these standards really
11 lies in the implementation and the ability to
12 implement those standards.

13 The neat thing about this effort is I
14 view it as it's served as a catalyst for creating
15 and designing many other efforts to reduce
16 nutrients in the state of Montana, and I like to
17 call it our nutrient reduction strategy. And I
18 just wanted to touch on a couple of key points,
19 keeping them pretty general.

20 But the Department has led or supported
21 several efforts since we've been working on these
22 nutrient standards. For example, legislation,
23 we've had several pieces of legislation that we've
24 either supported or led that effort, and just to
25 name them off right quick. Senate Bill 200 came

6
1 out of the 2009 session. That was a dishwashing
2 detergent phosphorus ban that came out of
3 Missoula.

4 Senate Bill 95 was part of our nutrient
5 standards implementation piece, which allowed the
6 Department to get a variance against those
7 standards so that we could implement them across
8 the state in an effective and staged manner.

9 House Bill 52 was last session. That
10 was our water reuse bill. That basically gives us
11 the authority to allow municipalities to reuse
12 their wastewater for different things like fire
13 suppression, irrigation, dust abatement, things
14 like that, and all it's based on a minimal
15 treatment requirement.

16 House Bill 28 was a bill that came out
17 of the Water Policy Interim Committee. Our
18 Department supported that one pretty heavily. It
19 basically was the mixing zone bill that no longer
20 allows for septic mixing zones to cross over to
21 adjacent landowners without an easement.

22 The issue was that these subdivisions
23 were going in, and depending on a variety of
24 factors, whether the mixing zone was 100 feet or
25 500 feet, they were crossing over into other

7
1 property boundaries, thus limiting the adjacent
2 property owner's ability to put in a well. So
3 that's just kind of a high level overview of that
4 piece of legislation.

5 We also had Senate Bill 267, which was
6 sort of our TMDL bill. The TMDL's are all tied to
7 the -- That just basically gave us the ability to
8 fulfill the negotiations with the plaintiffs that
9 we had ongoing last year.

10 Finally, Senate Bill 367 came out of
11 Senate Bill 95, and that was just after two years
12 of work with the Nutrient Work Group, that's where
13 we landed following Senate Bill 95, and trying to
14 more effectively implement the variance process.

15 So those are just a few from the
16 legislative perspective. Other things we've done
17 as a Department is I think we've greatly increased
18 our public process with more involved stakeholder
19 groups, the Nutrient Work Group. We now routinely
20 as a Department meet with the League of Cities and
21 Towns. Our permitting programs are meeting with
22 their permittees up front and throughout the
23 process. A lot of these have increased the time
24 to get things done, but I think in the long run,
25 it's been better for everybody. It makes things

8
1 more effective, and folks know what's going on.

2 On the nonpoint source side, we continue
3 to have a pretty strong education and outreach
4 program. Just a couple of examples. We're
5 funding -- Right now we're funding an individual
6 to go out and work with and provide assistance to
7 producers on nutrient BMP's for feeding
8 operations.

9 We have a Septic Work Group in the
10 Department that is looking at septic issues as
11 part of the nonpoint source piece, how can we make
12 reductions to nutrient loadings from septic waste.

13 And currently, the neat thing about that
14 is currently the Department is working with the
15 City of Missoula and the City of Helena at
16 possibly developing this concept of nutrient
17 trading; and in these cases, it's probably more
18 appropriate to call it offsetting, and that is --

19 Just a real general example would be if
20 a city chooses to go in and hook up to an existing
21 system, let's say, and we can do an analysis and
22 say that system is currently introducing "X"
23 pounds of nutrients into the watershed, and if the
24 city brings this online, they're going to reduce
25 that overall load to the watershed, but they also

1 are going to increase their own load, recognizing
2 that, but it's a net benefit across the watershed.
3 So we do have the ability to offset and allow them
4 to expand, but it's a greater good for the
5 watershed. So conceptionally that's how that is
6 looking to play out.

7 On the other side of the division I
8 manage is the Energy Program, the State Energy
9 Program, and we have had the ability through
10 stimulus funds to fund a couple of projects in the
11 last couple years.

12 And one in particular I'd like just to
13 point out is a small company called ACCT, and they
14 have built an octagonal greenhouse on Stoltz Land
15 and Lumber's property, and basically what they're
16 doing is they're growing algae using waste chips
17 from the lumberyard there at Stoltz, and they're
18 growing algae, and they are harvesting it to
19 create mainly biochar for fertilizer, but there's
20 biodiesel possibilities.

21 And there is also -- this is sort of my
22 "pie in the sky" -- but being able to maybe
23 someday hook on to wastewater treatment plants,
24 and that technology is there, and grow algae,
25 instead of discharging it into the stream. I

10
1 think the biggest issue with that right now
2 statewide and nationally is one of scale, but a
3 lot of that stuff is out there.

4 So the whole point of this today is
5 we're planning to brief the Board of Environmental
6 Review in March, and our plan is to not only give
7 the series of briefings that are following me that
8 is going to have much more detail than I've
9 provided, but also just to kind of show how this
10 is an umbrella, and all these little pieces of
11 rulemaking and legislation, all that, really serve
12 a common purpose. So that's really the point I
13 wanted to make today.

14 With that, I'll just leave it up to the
15 folks that can go into more detail on these
16 issues, so thank you.

17 CHAIRMAN SELCH: Going in order, Mike is
18 up next.

19 MR. SUPLEE: Good morning, everybody.
20 So what I want to speak to you this morning about
21 is the work we've been doing for the development
22 of numeric nutrient standards. I believe the last
23 time I spoke to this group was in August of last
24 year, I believe. And I kind of briefly went over
25 some of the activities that have been going on for

11
1 the nutrient criteria development, which is a
2 piece of this larger puzzle that George mentioned.

3 So today, because there is a good chance
4 we'll be going to rulemaking or hoping to go to
5 rulemaking sometime later this year, this is sort
6 of an initial chance to give some information to
7 you about how we got here, what the criteria
8 looked like, how they were developed, and some of
9 the other pieces that go along with this. And if
10 you have any questions as I go along, feel free to
11 ask.

12 This is an outline of what we're going
13 to talk about today. I just want to go over the
14 timeline that we've been working on in terms of
15 what's been done over the years for criteria
16 development. I want to go over why we would want
17 to have numeric nutrient criteria as opposed to
18 the types of regulations we currently have on the
19 books; the process of deriving criteria for the
20 different water bodies that we're talking about,
21 I'll go into those very briefly.

22 I want to touch on the trends in the
23 Clark Fork River case, because that's one of our
24 best case studies of nutrient standards and how
25 they operate, and they've been in place for about

13, 14 years or longer now, and we have some¹²
pretty good indications of how that's going.

Implementation, which has been a sticky
part of nutrient standards from the get-go, and so
I'll go into a little more detail on the two
Senate Bills that George mentioned. The Nutrient
Work Group, I'll touch on. The draft circulars
and rules, which would actually be the rule pieces
that you would look at at some point down the road
here, not today necessarily, but eventually. The
United State's EPA views on our approach, and
finally what we're kind of projecting as our
timeline for nutrient criteria adoption, which has
direct relevance to you.

So here is the brief and very much
incomplete overview of what has been done for
nutrient standards over the years. So probably
the biggest thing earlier on was in the 1990s. We
had the development of the criteria for the Clark
Fork River, and an accompaniment with that was
voluntary nutrient reduction program that went in
place to attempt to meet those targets. So that
was a voluntary program that kicked in in 1998.

In the years preceding that, there was a
fair amount of work on the development of criteria

1 and the targets for the river itself to prevent
2 problems related to excess nutrients.

3 In 2001, the Department here, we began
4 working on criteria development for all waters of
5 the state. In 2002, the Clark Fork River targets
6 were then adopted as standards for the river
7 itself, so those have been standards for about ten
8 years now, and all those rules were passed before
9 this body at that time, before this council.

10 Then for about the next several years,
11 we worked a lot on the technical elements of the
12 criteria: Figuring out what the criteria should
13 be, and establishing a system for where the
14 criteria would be different in different places,
15 etc.

16 In 2009, at that point we had a pretty
17 good idea what the criteria would look like. Many
18 of them looked like they were going to get pretty
19 stringent and difficult to meet, and that is when
20 we began to really focus in on the implementation
21 of components.

22 In 2009, Senate Bill 95 was adopted.
23 I'll go in more detail about that. But
24 essentially it allowed variances from the
25 standards so they could be met over a longer time

1 period than just one permit cycle.

2 Then in 2011, due to difficulties on
3 meeting this case-by-case type approach which the
4 original Senate Bill had provided for, there was
5 more legislative action, and we refined that
6 process -- the Nutrient Work Group was heavily
7 involved with this -- and it allows for general
8 variances. I'll talk about those later.

9 So that's kind of the general timeline
10 of what's happened with nutrients and nutrient
11 standards in the state.

12 So now I want to talk a little bit about
13 why we would want numeric nutrient criteria. So
14 we do have criteria already on the books that
15 address factors that are affected by excess
16 nutrients, and they're narrative standards.
17 They're known as the "free-froms," and they have
18 things on the books such as no nuisance aquatic
19 life to due to human actions, that would be a
20 standard that we have.

21 And the intent of these narrative
22 standards is in general fairly clear. Their
23 application has been inconsistent. So that's been
24 one of the issues with narrative standards.

25 So nitrogen and phosphorus, which is

15
1 what we're actually talking about when we talk
2 about nutrients, they also directly or indirectly
3 impact other existing water quality standards,
4 both numeric and narrative. So for example, they
5 impact dissolved oxygen, pH, excess algal growth,
6 etc. We'll be looking at some of that in a little
7 bit better detail.

8 So it became apparent to the Department,
9 and there has been also some pressure nationally
10 on this from EPA, to address the root cause via
11 nutrient standards as opposed to the indirect
12 effect, which is what we have standards for now.
13 It also would allow for more consistent permitting
14 and TMDL application because what the standards
15 would be are clear for everybody who is working
16 with them.

17 So when we're talking about nutrient
18 standards, what we're generally talking about in
19 terms of an effect in the state of Montana most
20 commonly -- it does vary from place to place --
21 but is some form or another of excess algal or
22 plant growth, which leads to certain types of
23 problems in the rivers and streams, and this is a
24 couple of photos of the kind of problems that
25 excess nutrients can lead to.

1 So this chart, I want to take a minute
2 and kind of go through here, because this gets at
3 how all this stuff ties together. So because the
4 nutrients most commonly manifest as excess algal
5 growth -- and in our rivers and streams, that's
6 more often than not algal growth attached to the
7 stream bottom -- we have a means for measuring how
8 much algae actually grows on the bottom, and to
9 quantify it, and it's usually measured as the
10 amount of chlorophyll per square meter on the
11 bottom. And this chart shows you how different
12 levels of that algal growth affect different types
13 of beneficial uses, and things that the Department
14 is charged to protect.

15 So for example, at the top, what we have
16 found is that the recreational beneficial use,
17 which our streams are protected for, basically
18 algal levels up to about 150 are considered
19 acceptable by the public, but beyond that they're
20 not.

21 Bringing down here to aquatic life, what
22 we see is that with the aquatic insect community,
23 at low algae levels, you typically see the
24 domination of water bodies by the types of insects
25 that we associate with fly fishing -- stone flies,

1 may flies, etc.

2 Around this same algae level, around
3 150, we usually see a shift away from those,
4 although they're still mixed with other types of
5 insects. And then at the very high algae levels,
6 the rivers and streams tend to be dominated by
7 scuds, or midges, or worms, or other types of more
8 tolerant organisms. So there is kind of a change
9 point right in this area. Typically at these low
10 algae levels we don't see any dissolved oxygen
11 problems with our streams, so the dissolved oxygen
12 is high enough to support pretty much all aquatic
13 life.

14 In this range here, we have documented
15 cases and studies we have done in the state that
16 show that there are in fact DO problems that occur
17 somewhere around 150; and then when you get out to
18 those very high levels, there is certainly
19 dissolved oxygen problems which affect both
20 fisheries and aquatic insects and other organisms.

21 In terms of -- When you get into the
22 literature on what affects salmonid type
23 fisheries, what we typically see is that if you
24 have extremely low algae levels, and very low
25 nutrients, usually adding some nutrients will

18
1 usually increase salmonid growth and survival up
2 to a point.

3 So in fact, on the Kootenai River on the
4 Idaho border with Montana, they're actually adding
5 nutrients, because Libby Dam has reduced the
6 amount of nutrients in the Koutenai River so slow,
7 because they settle out, that the fishery has
8 collapsed since the early 1970s when the dam went
9 in, so they've actually added small amounts of
10 nutrients and are boosting the fishery there. So
11 they're operating down in this range.

12 Now, once you get into the higher levels
13 of algal growth from more nutrients, the
14 literature on this topic in the scientific
15 literature were mixed, but essentially salmonid
16 growth starts to get high, or good, or possibly
17 diminished, but there is some kind of a general
18 shift in this area; and when you're out at the
19 very high levels, salmonid growth is impacted due
20 to changes in their diet because the types of food
21 available aren't as suitable for them, or
22 dissolved oxygen problems, or combinations
23 thereof.

24 So we use this to kind of demonstrate
25 what it is we're protecting because the nutrients

19
1 link directly to the amount of benthic algal
2 growth you'll see on the stream level, and they in
3 turn have effects on the various aquatic life and
4 beneficial uses that we're supposed to protect.

5 So let me talk a little bit about how we
6 derive nutrient criteria, because this gets into
7 the stuff that ultimately sets the standards. We
8 basically are looking at three parts. So first we
9 had to identify an appropriate geographic zone,
10 because nutrients vary nationally across the
11 state, and we wouldn't expect them to be the same
12 everywhere just because of climate, and natural
13 geology, background, etc.

14 We need to have an understanding of the
15 cause/effect relationship between the nutrients
16 and those uses, like I just mentioned. What's the
17 relation between nutrients, algae, and DO? We
18 have studies like that.

19 And further, we look at water quality
20 data from reference sites, and they give us a
21 benchmark for what the unimpacted streams of the
22 state look like in terms of their nutrient
23 concentrations.

24 So in terms of a system to define what
25 nutrients will be different and have different

1 criteria, we did a fair amount of analysis back in
2 the early 2000's, and decided, based on looking at
3 a couple of different systems, that ecoregions
4 were the best way to go. They basically defined
5 different areas where different concentrations are
6 naturally changing, and we can use those to define
7 what the expectations are.

8 The two biggest breakdowns is eastern
9 and western Montana -- which is pretty obvious --
10 mountainous ecoregions, plains ecoregions, and
11 some of these transitional ones right along the
12 Rocky Mountain Front. And then within these
13 zones, there is different areas. Like this dark
14 green area is the middle Rockies. It for example
15 can have nutrient standards that may be slightly
16 different than the northern Rockies, which is the
17 green up in the upper left side. So this is the
18 zoning system the standards will be based on.

19 So as I mentioned, having an
20 understanding of the relationship between the
21 cause/effect was key, and there was quite a few
22 regional studies that we've either carried out
23 here at the DEQ, or we have found in literature
24 and are using to understand the concentration and
25 dose relationships between nutrients and aquatic

21
1 life, DO, pH, etc., and these little stars kind of
2 show you where some of these are.

3 In addition, there are many, many, many
4 other studies nationally and globally that we can
5 use to help support the information that's been
6 worked out in these more localized studies.

7 And reference streams. So reference
8 streams are things that we've gone out and built a
9 network of 185 sites now. We've been collecting
10 data on reference streams intensely for the last
11 12 years, and more sporadically for the last 20 or
12 more, and we have them in both eastern and western
13 Montana, and they represent our best understanding
14 of what nutrients would look like in an unimpacted
15 state. So these give us a piece of information
16 that helps us to understand what the benchmark
17 ought to be.

18 I'll show you how now -- I think the
19 next slide. This kind of shows you how we tie
20 these two pieces of information together. So
21 usually when you get a lot of data back from a
22 whole bunch of reference sites, let's say in a
23 particular zone, let's say the middle Rockies,
24 you'll see a distribution that looks like this.
25 So they'll have some kind of a central tendency

1 here, and these concentrations represent -- this
2 concentration here represents kind of a typical or
3 mid range concentration for the reference sites
4 from that area.

5 Now, then what we do is we take those
6 dose response studies, and we compare what they
7 would look like to these. In general, just based
8 on theory, you would expect that concentrations
9 from a dose response study that are showing DO
10 problems, or impacts to aquatic insects, are going
11 to be fairly high, and they're going to probably
12 be higher than the typical one you can see in a
13 reference site.

14 But by definition, these are not
15 impacted, and this is actually in fact what we
16 see. Typically when we take those dose response
17 studies, and we get back a concentration, let's
18 say 30 micrograms total phosphorus per liter, and
19 we compare it to the regional reference sites,
20 they'll typically be out in this range. So we use
21 these two pieces of information to cross check one
22 another, does it make sense.

23 And there are in fact some ecoregions
24 where there is naturally elevated levels of
25 phosphorus just based on geology, and we can

1 account for that as well, and make sure that the
2 criteria are set appropriately in those cases.

3 So what we're going to have coming soon
4 -- and this will not be an action that you'll need
5 to take, but it will be a document available to
6 you -- will be an addendum to the report I put out
7 in 2008, which will go through ecoregion by
8 ecoregion in a presentation format like this.

9 So there will be a page showing the map
10 of the state, the ecoregion in question, the
11 recommended criteria for that ecoregion, some
12 descriptive statistics, and a quick and
13 easy-to-use table for the reference sites from
14 that ecoregion, so you can do a comparison between
15 what the criteria are, and what the natural
16 background looks like for the stream. Then on the
17 following page there will be about half a page
18 explanation of how we came to derive the criteria.

19 So this will be the technical background
20 that you can refer to if there is questions about
21 how these criteria were developed or what the
22 basis of them is. This should be ready. We're
23 going to put some of this out in another week in
24 an incomplete form, because the Nutrient Work
25 Group has been asking to see it; and then after

1 that, we'll get a completed one done in a month or
2 so.

3 Now, we haven't worked on only wadeable
4 streams. We've also worked on large rivers. We
5 ran into a different type of issue when it came to
6 deriving nutrient standards for the large rivers.
7 The issue was that first there is no reference
8 sites to use, so that took away a very important
9 piece of the information that we usually use to
10 help calibrate, and cross check, and make sure the
11 criteria makes sense.

12 They're also much deeper, faster, have
13 different light regimes within the water column
14 than the wadeable shallow streams, and changes a
15 lot the way nutrients manifest their effects. And
16 so looking at our various options, we settled on
17 the use of mechanistic water quality models.

18 So with these models, once they're
19 built, calibrated, and validated, you can simulate
20 all the things that we were talking about earlier
21 in terms of things that are impacted by excess
22 nutrients -- dissolved oxygen, pH, nutrient
23 benthic algal growth, etc., and so that's the
24 approach we took.

25 Our first effort was on the Yellowstone.

25

1 Now, all these remaining large rivers will be done
2 case-by-case going forward. We may get a point
3 where we understand the models and the modeling
4 processes, and may be able to speed it up; but at
5 this point we're still handling them on a
6 case-by-case.

7 So our first one was on the Lower
8 Yellowstone River, and we carried out this study
9 between 2007 and 2008, and then we finally
10 finished the model, and it just came back from
11 peer review the other day, and so that technical
12 report should be finalized in the next couple
13 months. And it was carried out down there in the
14 lower part of the river.

15 So this was a case where we were able to
16 develop criteria for a 145 mile long stretch of a
17 large river of the state. This is kind of the
18 approach using the QUAL2K model that we'll be
19 doing going forward for other large rivers.

20 So this summer, we're planning to tackle
21 the remaining part of the Yellowstone River from
22 Billings back upstream to Livingston. From our
23 point of view at that point, our criteria
24 development for the Yellowstone River would be
25 complete.

1 So a table similar to this is what
2 you'll actually end up seeing in the circular that
3 we'll talk about later that you would be looking
4 at and taking action on.

5 So it will be providing different
6 ecoregions, because that's how we're going to
7 break out the criteria; their period of
8 application, which I haven't mentioned up to now,
9 but they are seasonal criteria, because the
10 effects that we're concerned about do not manifest
11 year around. Basically in the summer when it is
12 warm, the water levels are shallow, the algae
13 growth is maximal. That's when we see the DO
14 problems, the pH, the nuisance algae, etc.

15 And so the criteria are designed to
16 target that time period; other times of the year
17 other types of nutrient standards would be in
18 place that we already have on the books, for
19 example, the human health standard for nitrate,
20 etc. And so where we're at right now is we're
21 working on, and developing, finalizing these
22 concentrations for these ecoregions, and then we
23 have these two reaches of the Yellowstone River
24 finished. And these might shift around a little
25 bit, but they're pretty close to what we'll finish

1 with based on that modeling approach.

2 Lakes. We are also going to be and have
3 been working on lakes because nutrients do impact
4 lakes. Common impacts are loss of water clarity,
5 and that leads to reductions in recreational value
6 and property value. Increased frequency of
7 noxious algae blooms is probably the most common
8 problems. You see that at Canyon Ferry almost
9 every summer. That in turn leads to sometimes
10 changes in fish species composition.

11 Sometimes we'll see a shift from
12 macrophytes, which are aquatic plants, vascular
13 can be replaced instead by dense populations of
14 phytoplankton. Sometimes they'll lead to taste
15 and odor problems in source waters where there is
16 drinking water supplied.

17 So these are the kinds of problems we
18 see in lakes. We're further behind on lakes in
19 terms of criteria development because they're
20 under development. We have finished our data
21 collection; we wrapped that up around 2008. We're
22 planning to tackle our first large reservoir a
23 year from now or perhaps two years from now, again
24 taking a modeling approach.

25 But at the time that we bring criteria

1 to you for adoption, presuming that that all goes
2 as planned here in the spring, we won't have any
3 lake or reservoir criteria recommendations at this
4 time because they're just not finished yet.

5 The one exception to that might be
6 Flathead Lake, where they've worked on that a long
7 time. There is criteria out there, and we're just
8 kind of trying to figure out what the final
9 numbers ought to be, working with the Flathead
10 biostation, etc. So other than that one, though,
11 there won't be any reservoir or lake criteria in
12 the near future.

13 So let's go look at the Clark Fork River
14 for a moment. The reason I bring this one up is
15 because this is a really nice case study to see
16 what the implication of the actions you may be
17 asked to take here in another few months are going
18 to be in the long haul, because you're going to be
19 taking actions putting criteria in place that will
20 then in turn be implemented over time, and what
21 happens.

22 Probably our best case study is on the
23 Clark Fork. So as I mentioned in 1998, they had a
24 voluntary nutrient reduction strategy that went in
25 place. Later on we adopted those as standards.

1 All the major point sources on the river have been
2 working to reduce their nutrient loads to the
3 river, especially in certain cases. Missoula is a
4 very good example. And we've definitely seen some
5 improvements, and some not so successful areas.

6 So in general, the river kind of splits
7 itself into two halves. Upstream, the Blackfoot
8 River Confluence, you tend to see reductions in
9 nutrients, but not quite enough, and the algae
10 problems are still manifested there, although
11 they're kind of moving in the right direction.
12 They just quite haven't hit the standards.

13 Downstream, once you hit Missoula, which
14 put in a big upgrade to their wastewater facility
15 in 2004 and 2005, and we see a pretty sharp
16 reduction in the nutrients -- I'll show you that
17 in minute -- we're definitely seeing achievement
18 of the standards.

19 So this particular site, which I want to
20 talk about, is called Site 18. It's been
21 monitored continuously every single summer since
22 1998, monitored right on through this year. These
23 data go through 2009. Here these numbers and data
24 show the trends of the total phosphorus in "A,"
25 total nitrogen in "B," and the chlorophyll "A" --

30
1 we talked about chlorophyll "A" earlier in the
2 terms of the way we measure bottom attached algae
3 -- and the standards.

4 So you can see here, especially when the
5 facility went in place in 2005, there is a sharp
6 drop in the total phosphorus that's notable at
7 this station, which by the way is downstream of
8 the mixing zone.

9 So this would be the ambient river. And
10 although the criteria was set down there at 39
11 micrograms total phosphorus per liter, they're
12 actually achieving closer to 20, which our
13 subsequent studies say probably is what the
14 standard ought to be; and is also by the way the
15 standard that they set for the upstream river
16 since 1998, but it just hasn't been achieved in
17 many cases.

18 Also they have seen improvements, steady
19 improvements through time here in total nitrogen,
20 and they basically have been achieving it since
21 about 2008 consistently. We've run statistical
22 analysis on this, accounting for changes in flow,
23 etc., and they still show that these trends are
24 either due to human changes, actions, improvements
25 to the river, not just changes in weather, or

1 flow, or rain patterns.

2 So you can see that going along with
3 this correspondingly, the algae levels that have
4 been monitored every summer are actually coming
5 down as well, and here in these recent years,
6 they're essentially being achieved in the ambient
7 reaches of the river. This is in spite of a 20
8 percent population growth increase in the basin,
9 and in Missoula in particular.

10 So this shows you that these kinds of
11 standards and criteria can be effective in
12 achieving the water quality goals that have been
13 set for a river system.

14 MS. BUCKLIN-SANCHEZ: Mike, I have a
15 question. You just mentioned that the external
16 circumstances, that there's changes. For example
17 you mentioned population. Is that why the total
18 nitrogen rose there and then --

19 MR. SUPLEE: We don't really know why
20 it's doing this. My guess is there were some
21 fairly higher flow events in the early 1990s in
22 the summer, and the general pattern that you
23 see --

24 MS. BUCKLIN-SANCHEZ: Does the pH, the
25 time of year and the pH reflect how much nitrogen

1 you would get then?

2 MR. SUPLEE: Not so much as -- What
3 happens in general is high flows in the summertime
4 tend to lead to higher nitrogen concentrations in
5 these river systems, and so there's more influence
6 from groundwater. In contrast, higher flows tend
7 to lead to higher total phosphorus concentrations.

8 So what we've seen is that this may have
9 been a period when there was relatively lower
10 flows possibly, and so there was more influence
11 from groundwater. I may have been getting them
12 mixed up.

13 MS. BUCKLIN-SANCHEZ: You mentioned
14 population. And then other things like forest
15 fires, and pine beetles, do those influence
16 nitrogen and phosphorus?

17 MR. SUPLEE: Yes. They do definitely.
18 So the one factor that -- These data are just
19 shown as we measured them.

20 MS. BUCKLIN-SANCHEZ: Raw total
21 nutrients.

22 MR. SUPLEE: Yes. So actually when you
23 actually run the statistics, what you do is you
24 adjust for the effect of flow, because flow is the
25 largest single effect on total nitrogen and total

1 phosphorus measurements that you can measure as an
2 external value, and so the typical relationship is
3 higher flows means higher total phosphorus, and
4 higher flows means lower total nitrogen, so
5 they're inversely related.

6 So when you account for that, you can
7 really see if the effects of people's management
8 activities have changed or not, and that's what we
9 were able to do with the statistics, and they
10 clearly show that the phosphorus and nitrogen have
11 both come down, especially the phosphorus, because
12 the way the patterns have worked out, we should
13 seen more phosphorus in the river in recent years,
14 because we've tended to have a little bit higher
15 flows as the drought eased, and in fact it's been
16 going down. So that's based largely due to the
17 improvements in the wastewater facilities and
18 other actions.

19 MS. BUCKLIN-SANCHEZ: I could just make
20 a comment. I guess I'm kind of stunned to see the
21 impact of point sources. I always assumed that
22 nonpoint sources had as much or more influence,
23 and here you're pointing to a point source.

24 MR. SUPLEE: Well, I think that point
25 source -- nonpoint sources are not unimportant,

34
1 but the reality of it is in all the big river
2 systems that we have studied, the Yellowstone,
3 Clark Fork, and others, that have large
4 facilities, municipalities on them, when those
5 municipalities or other people do major
6 improvements to their treatment facilities, you
7 see a marked effect on the river, especially in
8 phosphorus. So that's just kind of a fact of the
9 river.

10 When the original studies were done on
11 the river in the late 1980s, I think it was
12 something on the order of 50 percent of the
13 phosphorus load to the river was accountable to
14 four major point sources: Butte, Deer Lodge,
15 Missoula, and Stone Container at the time. So
16 that just gives you an example of the significance
17 that point sources can be in terms of their
18 influence on some rivers.

19 MR. SALLEY: What was the change in the
20 process of the treatment plant that --

21 MR. SUPLEE: They went from a standard
22 secondary treatment plant to a biological nutrient
23 removal, and so that brought down the "N" and "P"
24 significantly. Our engineers in the room can give
25 you those exact numbers if you want more detail.

1 MS. WILLIAMS: So two questions. If
2 Stone Container reactivated its discharge permit,
3 would we see an increase?

4 MR. SUPLEE: Possibly. But then they
5 were already coming down a lot because of
6 reductions in the amount of workload.

7 And they had changed their process in
8 the early 1990s, I believe. They were actually
9 adding phosphorus because they needed the
10 additional nutrients to help break down the paper
11 products in some of their digester ponds. They
12 refined that process significantly in the 1990s, I
13 believe, and that really brought down the
14 phosphorus by that action alone. So they were
15 able to actually fine tune their internal
16 engineering process to knock down nutrients.
17 Probably if they were to start back up, they'd do
18 that and more.

19 MS. WILLIAMS: And then the second
20 question. You've got a pretty high 2010 data
21 point there. I can't quite see it how it's lined
22 up. But will that tip up then? Will the average
23 tip up?

24 MR. SUPLEE: No. This line, this
25 regression line, is called a LOESS -- Locally

1 weighted regression line -- so it's accounting for
2 all this noise. That data point is included in
3 here. This is the nature of monitoring benthic
4 algae in river systems. It is noisy, and there
5 are -- the system is not 100 completely understood
6 or perfect, but the trends are unmistakable.

7 And I should point out, too, that in the
8 last two years, 2010 and 2011, the algae levels
9 have dropped even more, so they're now hovering --
10 the last two years of monitoring are down in this
11 area. So they're continuing to come down.

12 MR. WENDLAND: So Mike, on these larger
13 rivers, when you go -- like the Yellowstone and
14 the Missouri, but if you go from the mountains out
15 onto the prairies, are that criteria in different
16 sections or are you just --

17 MR. SUPLEE: No. We have different --
18 In Yellowstone River -- Let's go back to that
19 slide because I think that might be helpful.

20 MR. WENDLAND: I should have asked when
21 I saw that picture.

22 MR. SUPLEE: So the Lower Yellowstone
23 River, by the time we -- Our study reach began at
24 Forsyth, so now we're well down into the lower
25 part of the river. So there is an ecotone near

1 Billings and Laurel where it kind of shifts from a
2 trout fishery to a warm water fishery. We're well
3 past that.

4 Even still, we have two different
5 criteria reaches in this lower section. So the
6 effect that we're taking account for primarily in
7 the lower reach is the influence of the Powder
8 River. The Powder River dramatically bumps up the
9 turbidity, changes the way the light patterns and
10 the algal growth behaves, etc., and so the
11 criteria for that lower reach are much more
12 liberal than those immediately upstream. So
13 moving forward into the other reaches of the
14 Yellowstone, we'll probably have two or possibly
15 three distinct criteria reaches.

16 MR. WENDLAND: Thank you.

17 MR. MATHIEUS: Just relating back to
18 some of the nonpoint source questions, the
19 previous dialogue. It's probably important to
20 note that the other thing that Missoula did was
21 they had a pretty aggressive effort to hook on
22 septic, and existing septic, and restructure how
23 they -- you know, recognizing that they have a
24 very shallow alluvial groundwater system in that
25 area. They hooked up dailies. There was some

1 pretty significant sort of capturing nonpoint
2 source in that area as well, so --

3 MR. SUPLEE: I forgot to mention that.
4 That's a really good point, because that was
5 considered probably the -- The Tri-State Water
6 Quality Council thinks that that is probably the
7 second most important action on the river in the
8 last ten years, after the BNR planned upgrade in
9 Missoula. So that's a very important point.

10 So anyway I just wanted to show you that
11 there's a lot more of this. We'll have a paper
12 coming out on this in a few months. It's going to
13 come out in a peer reviewed journal. So I just
14 wanted to show you this because is sort of the
15 implications and actions of nutrient standards,
16 and what -- you know, kind of a case study of what
17 they lead to, and how it tends to play out over
18 time in a basin right here in Montana.

19 So now we're going to talk a little bit
20 about implementation. Like I said, the criteria
21 we showed, we looked at those a little bit
22 earlier, those are pretty stringent standards. A
23 lot of those ones, especially for western Montana,
24 are going to be difficult to meet, and a lot of it
25 leads back to this: Again, this is a point source

1 issue.

2 But if you look at a typical western
3 Montana stream criterion that allowed 30
4 micrograms TP per liter, on the top graph on the
5 left, and you look at the approximate wastewater
6 technology limit, you can see that the bar
7 represents sort of the argument area of the
8 engineers as to what the limits of technology,
9 practical technology. Depending on the engineer
10 you talk to, it would fall somewhere in that black
11 bar.

12 What you can see is that with the total
13 phosphorus, you can achieve or get close to our
14 western Montana criteria if you put in a good
15 enough facility, like that BNR plant or something
16 more sophisticated than that, like they did in
17 Missoula.

18 On the other hand, for total nitrogen,
19 what we're finding is total end criteria are going
20 to be down in this range, 300 to 1,000 micrograms
21 per liter, depending on where you are; and the
22 approximate wastewater technology limit is more
23 like 4,000.

24 So there is a big gap here, and this is
25 where trying to achieve these tomorrow, right

1 away, one permit cycle is just not going to be
2 feasible, especially in cases where there is a lot
3 of influence in a stream by a wastewater facility,
4 because they just cannot get that kind of
5 reduction so readily. So this is where the
6 implementation over time component comes in that
7 we have been working on for the last several
8 years.

9 So what we've done is we've built in
10 options for communities to receive temporary
11 relief from the standards, based on the ability to
12 pay for the treatment, and available technology.

13 And I just want to point out that these
14 -- we'll talk about variances here -- they apply
15 to the wastewater treatment beyond the national
16 secondaries, so the national secondaries which are
17 in place, which are like TSS, BOD, percent
18 removal, etc., all wastewater facilities are
19 supposed to be able to do those, and these
20 exceptions do not apply to them. They apply
21 specific to nutrient standards that we will be
22 adopting in the near future.

23 MS. WILLIAMS: Actually can you back up.
24 If we're trying to help you prepare for the Board
25 presentation, that I'm assuming is one of our

41
1 roles here, it is actually the inability to pay
2 for treatment, isn't it?

3 MR. SUPLEE: Yes, that would probably be
4 a better way to phrase it. Thanks.

5 This is kind of an overview of what
6 Senate Bill 95 and 367 did. I put them together
7 because they're essentially -- one is just an
8 extension of the other. So what they do, they
9 give us authority to grant variances from the
10 nutrient criteria. These variances are kind of --
11 Sometimes we think of variances as a variance in
12 construction, where once you get that variance,
13 you build your building, it doesn't meet the
14 standards for construction, then you're finished.

15 These variances are different. What
16 they are is they're basically an allowance for
17 over a period of time, usually not to exceed 20
18 years, where you don't have to meet the standard,
19 but you're supposed to be working towards the
20 standard, and ultimately the standard has to be
21 met. That's how water quality standards variances
22 differ from perhaps other types of variances you
23 may have heard of.

24 And so we didn't have authority to grant
25 variances from the water quality standards prior

1 to these Senate Bills, so Legal Counsel told us we
2 needed to, if we were going to try to do this with
3 nutrient standards, we needed to get that
4 authority. And so Senate Bill 95 was our first
5 effort to do that.

6 Now, subsequent to that time, we came
7 out with 367, and they give us a little bit more
8 detail, because what happened was Senate Bill 95
9 essentially said, "Department, you can grant
10 variances on a case-by-case-by-case-by-case basis
11 only," and when we started getting into the amount
12 of time that would involve, other problems
13 relating to different types of permittees, it
14 looked like it was not going to be functional.

15 So Senate Bill 367, which was largely
16 led by the Nutrient Work Group, allowed for
17 something called general variances. So
18 essentially the idea there is if the permittee
19 can't meet the criteria now, but they can treat
20 effluent to these statutorily defined levels, then
21 they can receive a general variance, and they're
22 based on the discharge volume.

23 So if you are greater than one million
24 gallons per day, you can treat to one milligram TP
25 per liter and ten milligrams TN per liter during

1 the summer in your effluent, then you can receive
2 a general variance as a first step towards
3 ultimately meeting the nutrient standards. And
4 then it varies. It is a little bit less stringent
5 for the smaller dischargers.

6 And then for lagoons, which are very
7 difficult to deal with technologically, unless
8 they were to go to a very expensive change, are at
9 this stage asked to maintain current performance.
10 So this will allow us to at least make the first
11 step towards nutrient control, while other types
12 of efforts in the basins are implemented; and also
13 it buys time, because it takes time for some of
14 the technologies to mature -- George mentioned
15 some of the ones that are kind of out there and
16 being worked on -- to ultimately achieve low
17 nutrient levels consistently.

18 There is also the option still, which
19 was an original part of Senate Bill 95, to have an
20 individual variance. So if you're a permittee,
21 and you say, "I'm greater than one MGD, and I
22 can't even meet those. It would just break us,"
23 and you can come in for an individual variance,
24 and go through a unique economic analysis specific
25 to your community.

1 And if that all comes out and shows
2 that, yes, that would really cost too much, then
3 you may be able to get an individual variance with
4 criteria that are somewhat less stringent than
5 those. So perhaps instead of getting one
6 milligram TP per liter, you may get two or three,
7 or something like that.

8 CHAIRMAN SELCH: So that second one
9 should be phosphorus, or nitrogen, 15 milligrams
10 total?

11 MR. SUPLEE: Yes. Sorry about that.
12 Nice catch. Thank you very much.

13 So basically the overall idea of these
14 laws is that they allow time for Montana to
15 implement the criteria about over a 20 year
16 period, and it will help us in the sense that
17 technology will improve, costs will come down, and
18 there is also time to deal with the other part of
19 the puzzle, nonpoint source, which is out there, a
20 big piece of it in some cases. So that is the
21 general purpose of this law.

22 Those laws are now encoded at 75.5.313,
23 and one of the other things they do is they
24 describe the Nutrient Work Group. The Nutrient
25 Work Group is an advisory council, not unlike

1 this, a broad cross section of stakeholders, and
2 they advise us specifically on nutrient standards.

3 We've met with them 15 times since 2009,
4 we're meeting with them again at the end of
5 February. And we usually go over many different
6 topics, and we're not quite finished having
7 discussions with them before we go to the Board,
8 but we've resolved many problems relative to what
9 we had when we first started meeting with them.

10 And I'm not going to talk about nutrient
11 trading because Todd is going to talk about that,
12 but the Senate Bills and this law also allowed for
13 trading, and so Todd will talk about that later.

14 So this is actually the circular that
15 you, this council, would be looking at and
16 evaluating prior to going to the Board, and it's
17 actually two parts, "A" and "B," it's got the
18 criteria, the procedures for the general variances
19 and individual variances, how permits will be
20 written; and the rules also contain nondeg.

21 This is where it is on the internet, the
22 DEQ Nutrient Work Group site. I also have copies
23 here if anybody is interested in the latest
24 version of it. But they're not an action item.
25 They're just available if anybody wants to see

1 them early, in order to see what it looks like.

2 I'm pretty sure that -- Legal should
3 tell me if I'm saying this right, but I'm pretty
4 sure that this group would primarily only be
5 taking action on Part "A" and the rules. Is that
6 correct, Claudia?

7 MS. MASSMAN: That's right.

8 MR. SUPLEE: Part B pertains to
9 Department rules, more how we implement the
10 variances. The first part talks about the
11 criteria, etc. If anybody wants any of those, I
12 can pass those out.

13 MS. WILLIAMS: So the nondeg part, can
14 you tell us what is in this for nondeg?

15 MR. SUPLEE: Sure. What we have for
16 nondeg, that's not in the circular, but that's
17 actually in the small rule packet separate,
18 because the nondeg is already in our rules.

19 Essentially what we've said is
20 insignificant, nonsignificant if water quality
21 changes up to 50 percent of the base numeric
22 nutrient standards, which is the criteria we've
23 been looking at.

24 So if a water quality change was to
25 occur from an action, and let's say the standard

1 -- Let's say the water quality is currently at 10
2 percent of the standard, and somebody was going to
3 take some action, and it goes to 20 percent, that
4 would be considered insignificant, and that would
5 be allowed. Now if they were to take it from 10
6 percent of the standard to, let's say, 80 percent
7 of the standard, then you would move into the zone
8 where that would be considered significant
9 degradation.

10 So this of course only applies to
11 streams where the water quality is currently
12 superior to the standard, which there are many
13 streams out there like that. The vast majority of
14 them are, in fact. Our estimates are something
15 like 80 percent or more of the streams in the
16 state already meet all these standards. But where
17 there are already wastewater facilities, in most
18 cases, they're above the standards. So nondeg
19 doesn't really even apply. That's how it's set
20 up. It's a relatively simply nondeg rule.

21 This was also really important. Just
22 last month, after many, many, many discussions
23 about what our Senate Bills meant, and were they
24 legal, and what approaches were we taking, EPA
25 sent us a memo basically saying that they accept

1 this overall package that we're putting together,
2 which is the criteria, and the implementation of
3 the variances, to meet the standards over time.

4 So they basically told us that they
5 recognize that we were doing a good job on the
6 technical side, and that they concluded that the
7 issue -- and this was the important part really.
8 "EPA concludes that the issuance of variances
9 would be consistent with the Clean Water Act as
10 implementing regulation."

11 So that was for us, the Department, a
12 big success, because without it, once our -- even
13 if the rule package was to make it past this group
14 and then adopted by the Board of Environmental
15 Review, because EPA has final write-off authority
16 on our water quality laws, they could have stopped
17 it if they had chosen to. So we've been working
18 very closely with them in the background to make
19 sure that they're going to be okay with it, and so
20 that was a big step in that direction.

21 So looking forward for adoption. Our
22 next Nutrient Work Group meeting is at the end of
23 February. We'll probably have some more meetings
24 after that, maybe monthly, depending on how many
25 residual issues are still out there. But assuming

1 we get those details worked out, we're targeting a
2 Board package for July hopefully, maybe September,
3 but hopefully July; and of course at that point,
4 public hearings, etc., all that kick in.

5 So I'm not exactly sure, but I believe
6 we need to get the package to you this spring. Is
7 that approximately correct? How many weeks in
8 advance of the Board approximately?

9 MR. BUKANTIS: About a month.

10 MR. SUPLEE: We would get it to you then
11 early summer or late spring. Some of the pieces
12 and parts, like I said, are already available, but
13 they're not action items at this point, they're
14 just drafts, and they're going to change a little
15 bit as we go forward.

16 So that's what I have. That's where
17 we're at. Do you have any other questions that
18 anyone can answer?

19 MS. WILLIAMS: This isn't related to
20 rules, but it might be interesting to package some
21 discussion about it. George touched on it.

22 But apparently there is someone down in
23 the Bitterroot that has an algae based technology
24 that he thinks can treat --

25 MR. SUPLEE: I've visited the facility.

1 Paul LaVigne and I did a tour of the facility
2 about a year ago.

3 MS. WILLIAMS: I guess my point -- Well,
4 apparently he thinks that this assumption that
5 everybody has been talking about, that no
6 technology is available, may be changing.

7 MR. SUPLEE: Yes.

8 MS. WILLIAMS: I guess I think what
9 might be helpful is I think DEQ has some programs
10 to help businesses like that, correct?

11 MR. SUPLEE: I don't know.

12 MS. WILLIAMS: Because the concept of
13 "the technology will improve" seems really passive
14 to me, and I think if this is such a hardship on
15 people, that it would be helpful for the agency to
16 -- if they are helping these new technology
17 companies develop these new technologies, to
18 mention that.

19 MR. SUPLEE: Good point. Another thing
20 -- I don't think I went into that in detail on
21 this -- part of the regulation and in statute is
22 that every three years -- Every three years we
23 normally have to go and revisit our water quality
24 standards to make them current with the latest
25 science, etc. This is just a normal action for a

1 water quality standards group.

2 But every three years synchronized with
3 that, we need to revisit the technologies, etc.,
4 etc., to see if those variance numbers are still
5 current, and if they are not anymore because a new
6 technology has come along, and it's readily
7 applicable, etc., then that we have the authority
8 to lower or make more stringent the variance
9 numbers as another step towards achievement of the
10 criteria. That's a requirement that we have to
11 do.

12 MS. WILLIAMS: I guess it is just my
13 opinion that we should -- And I know regulation is
14 DEQ. But if we can also foster the achievement of
15 some of these technologies, and if we are doing
16 it, to mention that would be I think appreciated
17 by a variety of sectors.

18 MR. MATHIEUS: I can address some of
19 that, Kathleen. I think we're doing quite a bit.
20 I think from a funding perspective, we're
21 considerably limited compared to where we were in
22 the past, which off the top of my head, the one
23 you mentioned down in the Bitterroot, we've worked
24 with those folks as far as at least communicating,
25 having our engineers communicating with them and

52
1 meeting with them. We funded that project --
2 Columbia Falls I mentioned, and we've been
3 involved.

4 There was this other outfit, I think it
5 was called the "Floating Islands." So we were
6 involved with locally here, maybe not so much from
7 a funding perspective, but just being involved in
8 the process of doing a case study.

9 There is other mechanisms out there
10 beyond the one you have described and in the
11 Bitterroot that we've worked with those folks. So
12 as much we have the ability to, I think we're
13 working with and promoting, and we're heavy on the
14 biomass, and all that stuff as much as we can. I
15 think we're exploring all those opportunities, and
16 trying to not just wait for stuff to happen, but
17 help push it.

18 MS. WILLIAMS: I'm the public
19 representative on this group, and I think just
20 wrapping that into the public presentations on
21 this. And I don't know if that guy or any of
22 those guys are on the working group, but --

23 MR. SUPLEE: No, they're not.

24 MS. WILLIAMS: So that's just a comment,
25 that I think from the public perspective, we need

1 to be showing that we're trying to foster
2 solutions as well.

3 CHAIRMAN SELCH: I've got a question for
4 you. This might be a little drawn out.

5 But if these standards are seasonal
6 criteria during low flow conditions -- your
7 example in the Clark Fork obviously is heavily
8 dewatered and rich in nutrients. Has there ever
9 been considered, as far as --

10 If the limitations with technology
11 aren't there, and say a facility can't meet them,
12 if you offered, and they bought in-stream flow
13 rights to sort of dilute the concentrations,
14 rather than a -- you know, it's seasonal standard,
15 and it's concentration based, not a loading rate
16 standard, double the flow -- you're assuming it is
17 nutrient poor water.

18 MR. SUPLEE: We had a lot of discussions
19 about water rights relative to the standard and
20 meeting the standards, but they tended more --
21 this was during the Nutrient Work Group. They
22 revolved more around -- If I am discharging water
23 to the river, and I choose to not do that anymore,
24 am I affecting somebody's downstream water right.
25 That was more the issue.

1 In other words, like Billings, for
2 example, was talking about in the summer routing
3 their wastewater effluent to a purple pipe system,
4 or possibly growing some alfalfa up gradient, so
5 maybe much of that water would never go to the
6 river, and that solves their discharge problem
7 during the summer. So there were discussions
8 about -- what about, "Am I affecting somebody's
9 downstream water rights?" But to actually
10 purchase water, clean water, for example, and put
11 it into the river for dilution purposes, I'm not
12 really sure how that works.

13 I believe Butte does that, or that was
14 one of their strategies during the whole VNRP
15 process, that exact. They were taking water out
16 of Silver Lake, which has very low nutrients, and
17 routing it to their compliance point, which is the
18 Silver Bow, over to the Clark Fork. But I don't
19 think we've had too many discussions about that
20 exactly.

21 CHAIRMAN SELCH: I know a lot of times
22 some of those treatment plants make up the largest
23 portion of the in-stream flows that go -- you
24 don't want that to go away obviously.

25 MR. SUPLEE: Right. So that is kind of

1 one of these balance points, but the other reason
2 is that waiting for the technology to improve,
3 etc., is also sometimes of value, because we don't
4 pull -- not always. It just depends on the
5 situation.

6 MS. WILLIAMS: So the upper -- We are
7 seeing improvement in Lower Clark Fork. The upper
8 Clark Fork -- I mean the Blackfoot, what are the
9 solutions there?

10 MR. SUPLEE: Above the Blackfoot?

11 MS. WILLIAMS: Yes.

12 MR. SUPLEE: Well, they have done some
13 nonpoint source work. Deer Lodge is still
14 struggling with how they're going to do things.
15 They didn't discharge for awhile, and then they
16 went back to discharging, and they're trying to
17 get that resolved. So that's been part of the
18 problem. We've seen an up-tic in phosphorus
19 especially since they went back to discharge, but
20 that's a temporary situation.

21 My understanding is that Butte is
22 supposed to have a BNR plant on line by 2014; is
23 that right?

24 UNKNOWN SPEAKER: Yeah.

25 MR. SUPLEE: That we -- based on what we

56
1 saw in Missoula, I would anticipate that that
2 would have a pretty substantial effect downstream.
3 So that may be a big improvement for -- and I
4 think it's even a better facility than Missoula.
5 So that means that we'll probably see -- That's
6 really going to help out the upper river, and it's
7 probably going to help out the smaller communities
8 that are down the road, Deer Lodge, and Clinton,
9 and those.

10 But they're not quite there yet.
11 They've tended to kind of get close to the "N" or
12 the "P." They've never quite achieved them both
13 at the same time, and we're seeing is that
14 achieving the "N" and the "P" standard on the
15 Clark Fork River simultaneously seems to be the
16 ticket to getting the algae levels down to the
17 standards. Any other questions?

18 CHAIRMAN SELCH: Any other questions for
19 Mike?

20 (No response)

21 CHAIRMAN SELCH: If not, the next
22 speaker will be Paul Lavigne.

23 MR. LaVIGNE: I thought I would pull
24 this off without a Power Point presentation, and
25 that's what I'm going to do, but in retrospect,

1 maybe that would have been more helpful. But I
2 did make some copies of things this morning that
3 you might look at.

4 I'm Paul Lavigne, and I manage what's
5 called the Water Pollution Control State Revolving
6 Fund. And just kind of to put that program in
7 context, we're not a bunch of accountants, as you
8 might assume.

9 It's actually way worse than that.
10 We're a bunch of engineers. And so we have that
11 program which funds water pollution control
12 activities, and so it evolved into what's called
13 the Construction Grants Program, which is an EPA
14 program that funds a lot of facilities around the
15 state and around the country. It's now a loan
16 program. So we do a wastewater treatment program
17 and collection stuff. So that's kind of one
18 aspect of our program.

19 The other aspect is technical
20 assistance, and we do a lot of O&M inspections,
21 operation and management inspections; and a lot of
22 technical assistance to operators, and engineers,
23 and the public, just the general public, related
24 to wastewater treatment. And in addition to that,
25 we kind of do a lot of behind the scenes stuff.

1 I've been involved with Mike and the Nutrient Work
2 Group stuff, and numeric nutrient criteria.

3 Then we've also worked on design
4 standards for wastewater treatment, and that
5 circular that contains the design standards is
6 called circular DEQ2. Here is an example of the
7 current version. And I've got a couple experts
8 back here. Reuse is part of that. I've got a
9 couple people I'd like to introduce that have been
10 very instrumental in dealing with this.

11 Mike Abrahamson way in the back is one
12 of our engineers that's been responsible primarily
13 for developing DEQ2. Then Terry Campbell, who
14 you've met before, has been working on reuse
15 standards.

16 So DEQ2, to put it in context, it's
17 essentially a tool box full of design standards
18 that consultants would use to design wastewater
19 facilities, whether treatment, or collection, or
20 whatever; and it wouldn't matter if they were
21 groundwater discharge systems or surface water
22 discharging systems, but they're generally the
23 larger municipal type systems.

24 It is developed from what's called the
25 Ten State Standards, which has been around for

1 decades. There's ten states in the midwest that
2 have kind of gone together and compiled these
3 design standards. We essentially take their
4 standards, tweak them for Montana's needs, and
5 then in this case, we've added a bunch of new
6 stuff, too.

7 So we started with DEQ2 I think in 1994;
8 we revised it once in 1999; and then this is our
9 next revision. And compared to the last revision,
10 this one is pretty substantial. It goes through
11 and generally tweaks and cleans things up, but it
12 also adds design standards for some new processes
13 as we come along; it adds a standard for
14 biological nutrient removal, or BNR, and then we
15 talked on the reuse standards as well.

16 So I just kind of wanted to touch on a
17 couple things briefly -- there is way too much to
18 go into in detail here -- on DEQ2, and then maybe
19 a little more specifically on the reuse standards;
20 and there is rules that accompany those, there is
21 a law change, and that sort of thing.

22 The main things that we touched on in
23 DEQ2 were land application, which was already in
24 there, and that's separate from the rest of the
25 reuse because the land application that we've done

60
1 so far has generally been at agronomic rates, so
2 reuse would allow application beyond agronomic
3 rates.

4 The one thing that we found in the land
5 application standards that are currently in here
6 is that it just deals with design, but they're --

7 We go out in the field quite a bit, and
8 we saw problems where they really weren't
9 demonstrating to us that they were not impacting
10 groundwater or surface water, so we added
11 operational requirements in there, and sampling
12 and monitoring, just so they can make sure that
13 the water that goes out there, and the way that
14 they're applying it, all the nutrients are taken
15 up by the crops, and the crops are harvested and
16 taken off the site. That's in a sense the major
17 change that we made.

18 New technologies that we added were
19 membrane bioreactors, sequencing batch reactors,
20 and then biological and nutrient removal. So the
21 MBR's and the SBR's are technology that has come
22 about in the last ten years or so, and we're
23 starting to see a lot more of them. There is --

24 An MBR is a membrane biological
25 facility. Essentially the membrane replaces the

clarifier, so you have this kind of barrier that⁶¹
is -- I think they're -- What size are those
barriers?

UNKNOWN SPEAKER: .2 microns.

MR. LaVIGNE: .2 microns. So they
provide a physical barrier, and kind of get away
from the upset that you had with clarifiers, that
if you got a hydraulic surge, you could wash
solids and stuff over your clarifier. So this is
a high cost, but a small footprint kind of
approach.

And Bigfork is putting one in right now.
Butte is looking at one. River Rock down the
Gallatin Valley is looking at one. So they're
coming about. And no one had design standards.
We had no consistent way of reviewing them, and a
the consultants had no consistent way of designing
them, so we thought it was important to put those
in.

Then of course BNR, a few of those
facilities around the state. That kind of started
-- that trend kind of started up in the Flathead
Basin with -- essentially it was kind of a
pseudo-TMDL that the wastewater allocation was
developed back in the late 1980s.

1 So there are nutrient removal plants at
2 Kalispell, Bigfork, Whitefish, Columbia Falls, and
3 Yellow Bay. They've been around for quite awhile.
4 Kalispell just upgraded their plant; Columbia
5 Falls upgraded their plant; Whitefish is kind of
6 halfway there; and then Bigfork is in the middle
7 of a major upgrade.

8 But Missoula then, they built a BNR
9 plant. Helena has been building a BNR plant.
10 Helena built kind of a halfway BNR plant just for
11 nitrogen, so they have another step to take yet.
12 Billings and Great Falls, they haven't done
13 anything yet, but it is probably coming.

14 So there really -- Ten State Standards
15 really did not address nutrient removal at all.
16 So Mike did a bunch of research, and he put
17 together some design standards for biological
18 nutrient removal.

19 Going on to reuse, as I mentioned, Terry
20 Campbell kind of briefed you guys a couple times
21 over the last couple years on the reuse standards.
22 House Bill 52 in the last Legislature gave the
23 Board authorization to adopt reuse rules and
24 standards. It defines reclaimed wastewater, and
25 required DNRC approval related to water rights.

1 There is a lot of reuse already going
2 on. There is a lot of spread irrigation
3 facilities out there now, there's 20 or 30
4 municipal systems, and they've skated by the water
5 reuse issue.

6 Deer Lodge was challenged on their spray
7 irrigation issue there, when they pulled water out
8 of the stream and land applied it, and that went
9 -- it was somehow -- I guess DNRC in their,
10 whatever system they had there, decided it was
11 considered waste, and so water rights shouldn't
12 apply, and that's currently their kind of thinking
13 generally. If DEQ requires reuse or approves
14 reuse as part of their approval, then that is
15 considered waste, and not subject to water rights
16 challenges and beneficial reuse challenges. So
17 that's kind of generally their current view on
18 this.

19 We've developed a Memorandum of
20 Understanding between the two agencies to review
21 those water rights issues before we approve
22 anything from here on out, so that will be
23 considered.

24 I think Claudia -- Our thinking on this
25 was that we would not be having to deal with the

1 Water Quality Act, but in essence we do have some
2 changes in there, correct, in the rules?

3 MS. MASSMAN: In the rules. Some of
4 those rules would be water quality related to
5 groundwater permit stuff.

6 MR. LaVIGNE: I just wanted to go into
7 that for a second. I handed out a couple -- Page
8 1 is -- I handed you three things. One is the
9 reuse chapter out of DEQ2; another one is House
10 Bill 52; and the other is a couple of changes to
11 rules pertaining to the Water Quality Act and
12 Public Water Supply Act.

13 On that first page on Water Quality Act
14 rules, you can see that reclaimed wastewater just
15 refers to the definition in the act. It does
16 define unrestricted reclaimed wastewater. That's
17 probably the most contentious issue here,
18 potentially the most contentious issue. And then
19 it incorporates by reference DEQ2. So down below.

20 MS. WILLIAMS: Why is it contentious?

21 MR. LaVIGNE: Well, because what we're
22 saying is if you treat to a certain standard, and
23 those are such as oxidized, coagulated, and
24 disinfected, and meet a nitrogen limit of less
25 than five, you don't need a permit. So it would

65
1 be an exclusion from a groundwater permit. In my
2 mind, it was potentially the most contentious.
3 You guys might feel otherwise.

4 Everything else in terms of the reuse
5 stuff is pretty consistent with what almost all of
6 the other states have done. The unrestricted
7 reuse, some states don't do. Arizona -- I think
8 that is where we got this, from Arizona.

9 But five milligrams per liter is the
10 lower end of the limit of nondegradation. So if
11 you can treat to that at the end of the pipe,
12 essentially you have met nondegradation right off
13 the bat for nitrogen, and of course the water
14 quality standards for nitrate is ten. So if
15 you're below that. So we felt it was at least
16 worth a shot to try to do this without a permit.

17 MS. BUCKLIN-SANCHEZ: What is the
18 distinction between public sewage and wastewater?

19 MR. LaVIGNE: I think wastewater wasn't
20 defined and sewage was, so that's why we crossed
21 that out, if I'm not mistaken.

22 MS. MASSMAN: Public sewage systems.

23 MR. LaVIGNE: Public definition for one.

24 MS. MASSMAN: It is defined in statute
25 in Senate Bill 52. House Bill 52 basically gave

1 the Board authority to allow reuse for public
2 sewage systems. So the clarification in the rules
3 just to make sure that we're talking about the
4 same thing the statute does. And wastewater, I
5 think it is defined in rule, but it can include
6 industrial waste. So we stick with the authority
7 that we were granted in the statute by referring
8 to public sewage systems.

9 MS. BUCKLIN-SANCHEZ: That's kind of
10 what I would assumed. That's what I would have
11 assumed, that it would exclude industrial
12 wastewater, is why we define it as public.

13 MS. MASSMAN: Yes. They're supposed to
14 be public sewage systems.

15 MR. LaVIGNE: It might have been a
16 little short-sighted on our part. Certainly
17 industrial wastewater could be reduced if it was
18 treated correctly.

19 MS. BUCKLIN-SANCHEZ: Can you clarify
20 that just a little bit more, please.

21 MR. LaVIGNE: Sure. I didn't hear your
22 question.

23 MS. BUCKLIN-SANCHEZ: So the distinction
24 that it's a domestic or public sewage rather than
25 from an industry.

1 MR. LaVIGNE: Right. So public -- so
2 it's domestic wastewater from a public system, and
3 public is like 25 connection or more sites. It's
4 not individual onsite sort of stuff. It's
5 generally the larger systems. Does that answer
6 your question?

7 MS. NEUMAN: To me industry is also
8 public.

9 MR. LaVIGNE: But it just can vary so
10 much. With domestic wastewater, it doesn't vary
11 that much. We know what's in it typically,
12 especially in Montana. Now, if we had a bunch of
13 industry that was contributing to some system,
14 like Chicago or something like that, you don't
15 really know what's coming out the end of the pipe.
16 But generally the monitoring and stuff that's
17 required in the permit, we generally have an idea
18 of what's coming out of the system, what's going
19 into the system, too.

20 MS. WILLIAMS: Are we making more out of
21 this than we should? Because it sounds like it is
22 used to apply to public water supplies or public
23 wastewater systems, right?

24 MR. LaVIGNE: Right.

25 MS. WILLIAMS: So it is not a narrowing,

1 it is just a change of terminology.

2 MR. LaVIGNE: Right.

3 MS. WILLIAMS: "Public" applied to water
4 supply and wastewater.

5 MR. LaVIGNE: So I think we've kind of
6 covered what's in the rules pertaining to the
7 Water Quality Act. Do you want me to go into what
8 has changed in the Public Water Supply Act as
9 well? Karen, you probably understood it.

10 CHAIRMAN SELCH: Sure.

11 MR. LaVIGNE: It is not inconsistent.
12 It is just --

13 MS. WILLIAMS: Can I back up a second?
14 I'm just trying to make sure I'm on the right page
15 here, because our agenda item just has nutrients.
16 So is there like a multi-piece package that has
17 various rule changes that are going to -- and
18 we're hearing another part of the package now --
19 that it is all going to the Board at the same
20 time? Is that what's going on, or am I really --

21 MR. LaVIGNE: I don't know the timing on
22 Mike's stuff.

23 MS. WILLIAMS: Maybe that's a question
24 for Bob.

25 MR. BUKANTIS: Basically I think the

1 whole intent in the agenda item was an overview of
2 the Department's efforts to regulate and address
3 nutrients, and embedded in that are particular
4 items that you will see that will come in front of
5 you as action items in the future, like Mike was
6 kind of more specific about.

7 MS. WILLIAMS: And they may be at
8 various times.

9 MR. BUKANTIS: Yes.

10 MS. WILLIAMS: Sorry. I just needed to
11 get on the right page.

12 MR. LaVIGNE: Just to maybe bring this
13 effort in context, what we plan to do at the next
14 Board meeting is just kind of a briefing, because
15 this is way too big just to hand them to look
16 over. What we're going to do is post this on the
17 web. It's still a working document. Then they
18 would have two months to look at it before we
19 introduce a request for rulemaking. So then maybe
20 they'd have a chance to look at it and have
21 comments for us.

22 MS. WILLIAMS: So all the proposed
23 changes in DEQ2 are related to the nutrient
24 strategy?

25 MR. LaVIGNE: Not all of them.

1 MS. WILLIAMS: Oh, it's broader. Okay.

2 MR. LaVIGNE: Right. It certainly is
3 broader. We tried to wrap them together, mainly
4 because reuse ties into it, and obviously reuse
5 ties to nutrient. If you can get water out of the
6 river, it's a benefit in terms of nutrients.

7 Going on to proposed changes to the
8 rules for the Public Water Supply Act. It just
9 goes into approvals. It says that it must be
10 approved in compliance with the reuse standards in
11 terms of treatment. There is monitoring, sampling
12 requirements, and reporting requirements.

13 It also addresses that the applicant
14 must get approval from the DNRC for the water
15 rights sort of thing. There is prohibitions for
16 using water that's not been treated correctly, or
17 using water in a use that's not approved.

18 And the other thing is there is a
19 modified -- proposal to modify the cross
20 connection rule that protects drinking water
21 supplies from other -- from wastewater and now
22 reclaimed wastewater. Those are essentially the
23 proposed changes there.

24 If you look at this one called New
25 Appendix B, that is essentially the reuse

standards, and they're embedded in DEQ as Appendix B. And essentially what this does -- This is still a work in progress here, so we've changed it a little bit even since I made this copy.

But essentially there is a couple tables in there that are pretty -- They're kind of the core of the whole thing. So what we've done is broken effluent into essentially four or five different classes, so A-1 and B-1 then are the ones that have unrestricted reuse. So those are the ones that get --

The key element there is nitrogen, total nitrogen less than five milligrams per liter, as disinfected as well, oxidized, coagulated. The difference between A-1 and B-1 is that A-1 is filtered as well, and B-1 is not. But then it goes down to the lesser treated effluents, and "C and "D," Classes "D and "C" as well.

And the first table in your version has a list of allowable uses for reclaimed wastewater. So we've got -- For spray irrigation, which we've always had, but in this case, we'd be allowing them to spray at greater than agronomic rates. So currently our reviews and approvals are based on agronomic uptake. This allows them to go beyond

1 that.

2 Landscape irrigation, drip irrigation,
3 and animal and fish operations -- so fish hatchery
4 kind of thing -- decorative fountains, jetting and
5 flushing of sanitary sewers, street cleaning and
6 washing, dust control and soil compaction,
7 firefighting, toilet and urinal flushing,
8 industrial uses.

9 And then wetlands, too. We only have
10 design standards. We have guidelines for
11 constructed wetlandsd use for treatment, and those
12 are lines facilities. This would allow reclaimed
13 water to be used for natural or constructive
14 unlined wetlands.

15 And then also aquifer recharge, aquifer
16 injection, indirect potable reuse, stream flow
17 augmentation, and snow making. Now, a couple of
18 these, two or three of those, would require a
19 permit, and that's stated in here. There is a
20 couple of oversights that we're working on today
21 that I just kind of left out, so we're kind of
22 tweaking them.

23 Then we go on to the fence requirements,
24 control of the land, control of the site that you
25 are spraying on, or whatever. Conveyance,

1 standards for conveyance. And what's not in this
2 one that we're working on now is monitoring and
3 reporting requirements.

4 So that's kind of reuse in a nutshell.
5 It's been a couple years in the making. I know
6 we've presented it a couple times, but we didn't
7 really have anything to show you. This is kind of
8 where we're at right now.

9 CHAIRMAN SELCH: Thank you, Paul. Does
10 anyone have any questions for Paul?

11 MS. BUCKLIN-SANCHEZ: I just have a
12 comment. It's a huge amount of work that you guys
13 did, on not just the reuse, but also I'm really
14 excited about the DEQ2 design criteria for the
15 technological base types of treatment. So I just
16 want to say great. Thank you.

17 MS. WILLIAMS: I'm guessing that --
18 Well, we had some legislation come through that
19 provided property tax abatements for, I think it
20 was subdivisions or individual dwellings doing
21 gray water reuse. Is an individual dwelling or a
22 subdivision not considered sewage or not
23 considered a public --

24 MR. LaVIGNE: The individual wouldn't
25 be, but the subdivision would be, depending on how

1 many --

2 MS. WILLIAMS: So the subdivision would
3 be subject to these design --

4 MR. LaVIGNE: Yes. This could be a
5 benefit to them potentially.

6 MS. WILLIAMS: And then the second
7 comment, I obviously made a bunch of phone calls
8 about new technology within the last month, and
9 got some feedback. Actually thank you, Mike. I
10 forgot to thank you for suggestions on that.

11 But we had one company say that the
12 design, DEQ's design standards wouldn't allow them
13 to develop their technology. So if I gave you
14 their name, would you be willing to talk to them?

15 MR. LaVIGNE: Sure. There is a section
16 in -- that's always been there in DEQ2 that allows
17 for new and innovative processes, but they need to
18 prove it.

19 MS. WILLIAMS: Well, they made a -- came
20 on the record and said that. So if I could just
21 connect you to --

22 MR. LaVIGNE: Sure. It's Algevolve.

23 MS. WILLIAMS: That's the Bitterroot
24 company.

25 MR. LaVIGNE: Algae development company

1 in the Bitterroot.

2 MS. WILLIAMS: This is the Drake
3 company.

4 MR. LAVIGNE: I haven't heard of them.

5 MS. WILLIAMS: They're here now.

6 MR. LaVIGNE: I'd be glad to.

7 MS. NEUMAN: I just need a clarification
8 on subdivisions. If the subdivision allows
9 individual homes to have their own wells and
10 septic tanks, how do they fall under the previous
11 statement that she was saying --

12 MR. LaVIGNE: Then they wouldn't meet
13 the definition of a public system, so they'd be a
14 private system.

15 MS. NEUMAN: We're really concerned
16 because we're on different elevations, and this
17 one has got the well, and this one has got the
18 septic tank, you know.

19 MR. LaVIGNE: Sure.

20 MS. NEUMAN: So we have no --

21 MR. LaVIGNE: For reuse, there really --

22 MS. NEUMAN: I'm not even thinking
23 reuse, I'm thinking --

24 MR. LaVIGNE: Just treatment?

25 MS. NEUMAN: -- contamination.

1 MR. LaVIGNE: And Steve could probably
2 jump in here. We've got the Level 2 treatment now
3 requirements, and that sort of thing, to help
4 bring the nutrients down, nutrient concentrations
5 down before they leave the site. Steve, I don't
6 know if you can jump in here.

7 MR. KILBREATH: Can you rephrase your
8 question?

9 MS. NEUMAN: I guess we have some
10 concerns with subdivisions, first of all, their
11 set-up, and they don't have the design for the
12 whole subdivision as a public one. It's all
13 individual septic systems that would drain one
14 upon the other, and eventually end up in a stream
15 through groundwater.

16 But I guess our subdivision realtors or
17 people who sell the land as a future subdivision,
18 are there any requirements on that? Because first
19 of all, the pollution of the drainage of the
20 septic system, and also the wells of previous
21 landowners now are being depleted, their well
22 water.

23 MR. KILBREATH: DEQ has a subdivison
24 review program, and we review all subdivisions in
25 the state of Montana. We look at water for

1 quality, quantity, and dependability when we redo
2 our reviews, and we look at wastewater treatment
3 from individual on through cumulative from a
4 nondegradation impact. We look at up-gradient
5 water quality data, and predict what impacts the
6 septics in this subdivision will have on the down
7 grading side of the subdivision and the users.

8 But individual wells and individual
9 septics are something that's clearly allowed
10 within Montana state law, and we're only seeing
11 those now. We haven't hardly seen any new public
12 water and wastewater systems associated with
13 subdivisions in the last three years since
14 economic adjustment has been happening in Montana.
15 And we've been seeing a larger number of small
16 subdivisions, four, five, sixes.

17 But we do that. We do look at water
18 quality. We look at how the septics are
19 installed, where they're installed, how they're
20 lined up so they don't get cumulative impacts in
21 place on down-gradient users.

22 What we do not look at is if this
23 subdivision dewateres a neighboring well. That is
24 a Department of Natural Resources concern. We
25 look at the dependability of groundwater, the

1 quantity and dependability. Can you get enough
2 out to supply the subdivision over a continuous
3 amount of time?

4 We have a lot of subdivisions we limit
5 irrigation on due to that. We just say, "You
6 can't irrigate a lawn above 5,000 or 10,000 square
7 feet," if that's the main consumptive use. Does
8 that get to your question?

9 MS. NEUMAN: Well, yes. I guess
10 thinking of Kathleen and serving the public, the
11 public needs to know that these are detrimental
12 when they start thinking about buying this piece
13 of land, and the consequences they would face or
14 incur when they do that, because they're buying
15 this unknown. They have no understanding of
16 septic systems. "Hey, they tell you this is
17 good," and all that, and five years down the
18 road --

19 MR. KILBREATH: I wouldn't argue with
20 your conceptual idea that they're no good. I
21 would say they are a viable option. Onsite
22 wastewater is a viable option for treatment when
23 you can't put in community systems, and you can't
24 put community systems in everywhere because of the
25 cost of infrastructure and the cost of running.

1 In the last legislative session, we got
2 House Bill 28 out there, and got it passed. House
3 Bill 28 limits the mixing zones for the
4 drainfields to stay within the exterior boundary
5 of the subdivision, so that when water --
6 groundwater exits the subdivision, it's meeting
7 certain standards, and those standards are well
8 within the public health standards for nitrogen,
9 and that's -- Nitrogen or phosphorus are the two
10 things we look at associated with septic systems.

11 I would contend to you that a properly
12 operated, properly designed, properly maintained,
13 and properly located onsite septic system is a
14 really great thing; but you notice I put
15 "properly" in that sentence four times.

16 MS. NEUMAN: That's our concern.

17 MR. KILBREATH: And "properly" is key.
18 Lewis & Clark County is the only county in Montana
19 that has an onsite septic system maintenance
20 district in place. It took lots of gnashing of
21 teeth and pounding of heads to get that in place.
22 And that maintenance program guarantees that these
23 onsite systems get looked at once every three
24 years, or five years, and the septic tanks get
25 pumped out, and they are maintained, so "properly

1 maintained" is key.

2 If you take -- Before this maintenance
3 district, if you took a cross section of the
4 Helena Valley, and you asked 5,000 people, "Do you
5 have a septic system, do you know where it is, and
6 do you know when you last pumped it?," one-third
7 would say, "You bet. It's right there. It was
8 three years ago," one-third would say, "Oh, yes.
9 When it backed up into the basement, I had
10 somebody look at it," and one-third would look at
11 you with a dumb blank stare and say, "Huh?"

12 And I think that's a cross section of
13 Montana, is a third, a third, and a third. So
14 education is a huge, huge deal on this.

15 MS. NEUMAN: What was the House Bill
16 again?

17 MR. KILBREATH: 28. It came out of the
18 Interim Water Policy Committee as a committee
19 bill. Steve Kilbreath with the DEQ Subdivision
20 Program.

21 MS. WILLIAMS: It is quite a change to
22 allow irrigation above the agronomic rate, right?

23 MR. LaVIGNE: Right.

24 MS. WILLIAMS: I'm trying to go back and
25 forth between Table 1. What protections do we

1 have in place then for the fact that the plants⁸¹
2 aren't going to take up all those nutrients?

3 MR. LaVIGNE: Terry, is that A-1?

4 MR. CAMPBELL: A-1, B-1 category.

5 MR. LaVIGNE: So you already have
6 nitrogen below five milligrams -- (inaudible) --
7 that's probably the biggest thing.

8 MR. CAMPBELL: There is a couple of
9 health protection aspects to this whole reuse
10 issue as well that's really important, and the
11 reason the difference between the A-1 and the B-1
12 waters, A-1 waters has a filtration step in place,
13 and the filtration criteria that we've embedded
14 into that document protect against pathogenic
15 viruses.

16 So not only are we disinfecting to kill
17 the bacteria in those classes of waters, we're
18 also screening out the smaller particles of
19 viruses that are not susceptible to the
20 disinfection steps, treating it much more like you
21 would surface water that you're using for drinking
22 water in order to achieve those virus removal
23 criteria.

24 So those two steps put together are more
25 protective for the public health perspective, and

1 then also meeting those nondegradation criteria
2 with respect to nutrients is the other key step.
3 And when you go through those processes, you're
4 treating water to the point almost to where you
5 could return it to the drinking water stream in
6 the community, put it back into your drinking
7 water supply without any adverse public health
8 risk.

9 So these are highly, highly treated
10 classifications, and they're going to be difficult
11 for people to achieve. And I just wanted to throw
12 that out.

13 MS. WILLIAMS: But it's still non-food
14 crops even though --

15 MR. CAMPBELL: Yes, and the reason for
16 that is because the national movement has not gone
17 towards irrigating food crops with these types of
18 waters. I'm Terry Campbell.

19 CHAIRMAN SELCH: I don't have any
20 questions. I'm going to propose a quick ten
21 minute break.

22 (Recess taken)

23 (Mitchell Leu not present)

24 CHAIRMAN SELCH: Our last speaker in our
25 nutrient strategy briefing is Todd Teegarden.

1 MR. TEEGARDEN: Hello, everybody. I'm
2 Todd Teegarden. I work in the Planning Division.
3 I'm the Bureau Chief of the Technical and
4 Financial Assistance Bureau, which is the
5 wastewater SRF and technical assistance program
6 that Paul manages, drinking water, state revolving
7 fund, and source water protection and wetland
8 programs.

9 Our program, because we do a lot of
10 funding for wastewater systems, works very closely
11 with Legal, Permitting, Jenny Chambers' group,
12 TMDL's, and anything related to permits, and
13 loads, and those things. I'm going to give a
14 brief overview of nutrient trading, and then our
15 policy, and where we're at.

16 A little background. As George
17 introduced and Mike, we're in the final stages of
18 developing our numeric nutrient standards for
19 nitrogen and phosphorus in surface water. We're a
20 headwater state, so nutrient standards will be low
21 when compared to other states; therefore, this
22 affordability level of technology and a bunch of
23 the information you've heard that Mike has taken
24 into account in these evaluations. Also we're
25 continuing to issue TMDL's that have load limits

1 which impact permits, and then projects.

2 Nutrient trading has been around for
3 decades, and it's a market based approach to
4 improve water quality. It is supported by EPA,
5 and they actually have a policy supporting trading
6 currently, and we have the ability to incorporate
7 that into permits now.

8 With TMDL load allocations coming, the
9 Department decided to look at what's out there for
10 trading programs, and how can Montana introduce
11 it, research it, maybe develop a policy to allow
12 it to be a tool to help with compliance with
13 meeting nutrient standards.

14 Typically trading is conducted between a
15 buyer and seller, or done through a centralized
16 broker. I'm going to list a few programs in a
17 little bit. But there is a lot of different
18 varieties of nutrient trading programs.

19 We anticipate incorporating point source
20 trades directly via the MPDES permits.

21 Groundwater waits to be seen. It depends on again
22 if they have a permit, or what the load is.

23 Trades usually occur within the same watershed and
24 stream segment, and our policy specifies that.

25 Pollutants that are traded world wide,

1 obviously nitrogen, phosphorus, but there are also
2 flow, sediment, temperature, heavy metals,
3 bacteria, etc.; and depending on impairments to
4 streams, these can be an option for trades.

5 Currently we're allowing our trading
6 policy to apply just to nitrogen and phosphorus,
7 and with the idea that in the future it could be
8 modified should there be a need for temperature or
9 other options.

10 Who can participate in trading. Point
11 sources certainly, but a big piece of the nutrient
12 trading programs is nonpoint sources -- septic
13 systems, and there is a few examples there of
14 what's traditionally defined as nonpoint source
15 programs.

16 Sometimes there is a third party,
17 whether that be a local government, state
18 government, there can be non-profit groups, NRCS
19 type of folks, aggregators, or private people that
20 do it as a business.

21 Examples of credits. This was mentioned
22 in Paul's discussion. But certainly restoration
23 of wetlands and riparian habitat could be a
24 creditable trade. Land application systems,
25 conservation tillage, cover crops. And there is a

1 lot more BMP's listed in our nonpoint source
2 management plan that are eligible for trades.
3 These are kind of some of the core ones.

4 Pros. To make a trade and trading
5 program possible really needs to save point
6 sources money or be a money creating item for
7 someone in the watershed. With appropriate
8 trading ratios, we try to reduce, or would plan to
9 reduce, overall loading to surface water of the
10 impaired parameter.

11 State costs can be minimized if a third
12 party is involved. Some programs, the State is
13 kind of a lead agency, and has FTE tied to it to
14 run the program; others it's a conservation group
15 or non-profits; and others that are brokers that
16 actually facilitate trade and make money as the
17 banker.

18 This last benefit is nonpoint sources
19 need financial help with improvements to their
20 land.

21 Cons. It's usually not effective until
22 point source loads are pretty low; and obviously
23 with the numbers we're looking at in Montana,
24 that's the case here. Nonpoint sources sometimes
25 are unwilling to participate due to implementation

1 or monitoring concerns; and we do not have the
2 legal ability to force nonpoint source practices.
3 There is a lot of work in Mark Bostrom's program
4 with nonpoint sources in doing projects to reduce
5 loads, but we don't have authority in the Water
6 Quality Act. Claudia?

7 MS. MASSMAN: Right.

8 MR. TEEGARDEN: So therefore that can be
9 a con. Obviously additional regulatory manpower
10 is sometimes needed as these programs develop.

11 Notable programs. One of the biggest
12 ones in the United States is in Chesapeake Bay,
13 and they're basically a point source, nonpoint
14 sources, and mainly for phosphorus, but they have
15 nitrogen as well.

16 The Greater Miami River Basin is a big
17 one for point source, point source, and nonpoint
18 source, for both "N" and "P," and here's a few of
19 the other ones. That are a few in the west. The
20 closest I guess would probably be in the Boise
21 River for phosphorus.

22 This just kind of shows an overview.
23 The blue and green are states that have programs
24 either at the state, or a framework established
25 within the state. The yellow are states that

1 don't have programs yet. So we're hoping to be
2 added to this list as a state with an "N" and "P"
3 program here in the next year or so.

4 Again, as the numeric criteria has been
5 going on, like George mentioned, the last ten
6 years. A few years ago our Director asked George,
7 and I, and a few of the Permitting and Legal folks
8 to research a draft policy and develop it, and see
9 what options were out there for Montana.

10 In 2009, we drafted a policy patterned
11 after the State of Maryland's, looking at the
12 other state programs that out there, such as Idaho
13 and Oregon. But we did kind of draft the original
14 draft from Maryland, which has got a pretty large
15 program.

16 In the last year and a half, we've held
17 subgroup meetings -- conference calls, I guess I
18 should say. In the discussions with the Nutrient
19 Work Group, nutrient trading has been an option.
20 It was even in the legislation as a viable option.
21 There is a lot of interest in nutrient trading.
22 So the recommendation from the Nutrient Work Group
23 was develop a subgroup that is kind of advisory,
24 or has influence and comment on where the
25 Department is at, and on drafting the policy.

1 And so we did that. That was in early
2 2011. We've had four meetings, I believe,
3 conference calls. We held a nutrient trading
4 policy workshop that spring that was well attended
5 by 100 plus people that are interested in point
6 source and nonpoint source watershed issues. We
7 took in formal comments. We did get comments
8 similar to what Mike mentioned.

9 We've included EPA along this path, and
10 we solicited comments from EPA, and they commented
11 on the draft, and then we had consultants, and we
12 had Montana Cities and Towns actually officially
13 comment on the plan.

14 We updated the draft based on those
15 comments, and are getting ready for the final,
16 thus why we're here to introduce this to you
17 folks. There is a link on the Nutrient Work Group
18 website that provides some of this information.
19 That's the site. The link is down towards the
20 bottom there, the nutrient trading subgroup
21 information. And within that we have linked what
22 other states have in terms of policies, and rules,
23 and regulations.

24 The question/answers is our response to
25 that original solicitation, the three commenters

1 that I mentioned. There is case examples. We
2 have -- Part of our policy is Appendix A and B,
3 which is what other states have done, and then how
4 other states have actually computed nutrient
5 trading ratios, and implemented numbers.

6 There is a link to the workshop with the
7 presentations that were held on April 13th and
8 14th of last year, and then the draft policy that
9 I've handed out.

10 Currently when we've been in discussions
11 with Legal, we have the authority to implement the
12 policy, and include trades and permits, but we do
13 not have the authority to adopt the policy. So in
14 a nutshell, I guess what that means is we need to
15 do a rule change to reference the policy. Our
16 intent is to have it be a simple rule reference
17 within the Water Quality Act that refers to the
18 policy which will be commented and adopted by you
19 and the Board. Is that correct, Claudia?

20 MS. MASSMAN: Right. This group advises
21 us, but the Board will adopt it.

22 MR. TEEGARDEN: Our timeline. We're
23 going to be putting together our final comments
24 from those public comments, and doing the final
25 changes in the next month. This spring we hope to

91
1 bring the final version hopefully at the next
2 meeting to WPCAC and then to the Board, this late
3 spring and summer.

4 The trading future. It's to be
5 determined how much DEQ will be involved with the
6 trading program. Our policy is an eight page
7 document that is kind of an outline of how we
8 would try to facilitate, and what we would include
9 in our review of a trading program.

10 It's not overly specific. It's not 100
11 pages long with examples and that thing. It was
12 intended to be a framework that either watersheds
13 or groups; or if the public asks the Department,
14 we could hire FTE, or include and go with the DEQ
15 being kind of the facilitator of the trading
16 program. But currently, our thought is we will be
17 approving the trades via our policy in the rule,
18 but not running the program.

19 We certainly encourage conservation
20 districts, local watershed groups, and the market
21 will determine how the program will evolve.

22 There was five of us that have been on a
23 core group drafting, editing, taking comments, and
24 attending, and developing the policy; and that's
25 myself, Claudia our legal Counsel, Jenny, Mark,

1 and then Eric. If anybody has questions, please
2 feel free to call us. I didn't go into detail on
3 policy itself, other than just kind of the
4 framework and what it intends to be. And with
5 that, I'm open to questions.

6 MR. SALLEY: Could you kind of just give
7 a hypothetical example of how it would work
8 without a lot of detail.

9 MR. TEEGARDEN: Sure. I guess an
10 example would be a point source system that has a
11 load limit waste load allocation at a certain
12 amount.

13 And in other states they've either on a
14 regional basis done point source to point source
15 trading, where instead of having three facilities
16 upgrade to a biological nutrient removal facility
17 that costs significant chunks of money, you pool
18 your funds, and have one facility do the upgrade
19 and handle the load from the other ones, to come
20 into compliance with your total waste load
21 allocation of point sources.

22 Montana has a lot of nonpoint sources
23 like Mike mentioned. In a lot of basins, point
24 sources are significant, but nonpoint sources is
25 certainly a big piece of the pie. So they will

1 have load allocations which would possibly include
2 onsite systems, septic systems.

3 And we're actually having conversations
4 with both the City of Missoula and the City of
5 Helena on implementing a trade for the systems
6 that they would hook up, provided there is a net
7 benefit to the water quality. But what they would
8 do would be they would evaluate and say, "Hey,
9 it's cost effective to go ask farmer 'X' to
10 improve his practice," or put a buffer in, or do
11 any of those nonpoint source activities that can
12 reduce loading that could potentially be lower
13 cost than a capital cost of a project.

14 And I think with Montana's numbers, our
15 trading program, I kind of think it will be a
16 piece of the solution versus the entire solution.
17 It's going to be hard for point sources to meet
18 their total load allocation by just doing one
19 nonpoint source improvement. I think it's going
20 to have to be a package of better treatment, maybe
21 some trading, maybe some reuse alternatives, land
22 applying, or a combination of both.

23 So I guess there is a mix of point
24 source and nonpoint source ideas and examples out
25 there, and the policy is intended to be a

1 framework for how either of those, point source to
2 point source, point source to nonpoint source, or
3 nonpoint source to nonpoint source. Does that
4 help answer your question?

5 MR. SALLEY: Yes.

6 MS. WILLIAMS: I have two questions, and
7 I haven't had a chance to read this, so if it's in
8 here, just say so.

9 The memo we got says that this program
10 is to facilitate reductions in nutrients,
11 presumably watershed wide. So how do we know --
12 The first question is: How do we know that the
13 trading isn't just moving things around, but it is
14 truly facilitating reductions?

15 And then the second question is: If a
16 point source -- Will a point source ever be able
17 to exceed its permit through a trading program, or
18 only -- Well, are there any exemptions to meeting
19 their permit if they do trading? Can they
20 discharge at a higher level?

21 MR. TEEGARDEN: Claudia.

22 MS. CHAMBERS: Ratio.

23 MS. MASSMAN: The permit limit will be
24 the permit limit. They can't violate the permit
25 limit. I think we're looking at drafting -- We

1 don't have a lot of experience yet in drafting
2 permits for this.

3 MS. CHAMBERS: I do believe that --
4 Jenny Chambers. Discharge permits. There will be
5 a net water quality benefit or offset because the
6 factors is a part of policy that the delivery and
7 uncertainty ratios. So you look at how much load
8 in the septic tanks for the BMP. There's factors
9 associated with the conservative approach on how
10 much nutrients was going to get into that surface
11 water of concern.

12 And so then you provide a factor of
13 ratio that could be a four to one, or a three to
14 one, that you're asking the point source
15 discharger to treat, or to take into account how
16 their concentration of treatment is, and you're
17 not getting a one-to-one ratio based upon hooking
18 up or doing that BMP, and then working with an
19 animal feeding operation, and getting the cows out
20 of the receiving water.

21 So I think that uncertainty and delivery
22 ratios will provide that factor of conservative
23 factor associated with to ensure that there is a
24 net water quality benefit.

25 And yes, the idea of the trading

1 component is to provide a ratio to that point
2 source permittee to allow them to discharge at a
3 higher concentration, but making sure that the
4 load for the watershed stays within the
5 requirements. Stays within.

6 MS. WILLIAMS: Not necessarily
7 compliance with the --

8 MS. CHAMBERS: Or declines. If it stays
9 within their waste allocation, it would most
10 likely be a decline in the overall TMDL load
11 allocation.

12 MR. MATHIEUS: It's similar to what I
13 said earlier. A simple example would be if the
14 overall load for a basin is 100, and in order for
15 the municipality to potentially take on a point
16 source, it is going to increase their load by,
17 let's say, 20, but they're going to reduce that
18 overall load. So it is just focusing right on the
19 municipality because they're reducing overall load
20 by 100 to 70, but they might increase their load
21 by 5 percent. So how can we allow them to
22 increase? We're only going to allow it if they
23 reduce their watershed wide.

24 MS. WILLIAMS: And if the result is
25 still within their permit.

1 MS. CHAMBERS: The permit will change
2 based upon that trade component, and trade will be
3 incorporated in the permit to provide the offset.
4 So depending on the trade that's been developed,
5 they'll have to demonstrate that that BMP still
6 exists, and that they're still gaining that
7 benefit from that trade component. So there'll be
8 compliance and/or monitoring associated with that
9 requirement. Hooking up a septic, they just have
10 to demonstrate they've hooked up to that septic,
11 and an additional septic for nonpoint source load
12 hasn't gone to that same location. If it's a
13 farmer, they're going to have to demonstrate
14 annually that that farmer is continuing to
15 implement that BMP.

16 MR. TEEGARDEN: And the onsite
17 evaluation will take evaluating the impact to the
18 resource from the groundwater, figuring out that
19 load, and then taking out what the existing
20 treatment capabilities are of the plant, so that
21 there is a net water quality benefit. Like Jenny
22 mentions, there's the uncertainty ratio and the
23 delivery ratio, which is two ratios typically
24 above one-to-one to guarantee that there is a net
25 benefit, and reduce the load.

1 MS. CHAMBERS: Hopefully we'll have an
2 example, too, that we can bring back to you guys
3 prior to having the trading policy go forward to
4 show you a real scale example of how we're trying
5 to incorporate the trading policy into a permit,
6 what that looks like, and what we estimate the net
7 benefit to that watershed.

8 MS. NEUMAN: What are they thinking
9 about monetary exchange? How are they basing the
10 monetary exchange?

11 MR. TEEGARDEN: That will be up to the
12 permittee or whoever the responsible party is, I
13 believe. Again, if you have a broker or a banker
14 type of project, then they actually do the cash
15 transactions; but again the State, we just want to
16 be able to facilitate the permittee or whoever is
17 trying to reduce loads, but the monetary exchange
18 will be up to them.

19 MS. WILLIAMS: It may be the cost of the
20 project.

21 MR. TEEGARDEN: Absolutely. Yes.

22 CHAIRMAN SELCH: Thanks, Todd. We're
23 running a little bit behind, but if you guys have
24 any more questions, I'm sure they wouldn't mind
25 answering them, or contact you. I appreciate that

1 gave our nutrient strategy update. There was some
2 great presentations. I would like to have
3 revisited those every so often because I forget
4 things quickly.

5 Our next speaker today is Rod McNeil,
6 and Rod has been allocated 15 minutes on here, so
7 we'll see if he can hold us to that or not. Rod
8 is going to talk about what he does in his free
9 time when he's not reading 5,000 page EA's.

10 MR. McNEIL: Actually I only get seven
11 and a half minutes. I'm splitting this with Amy
12 Steinmetz. So we're going to talk about three
13 things today. We're going to talk about interim
14 pesticide standards development; we're going to
15 talk about the silver standard; and then Amy is
16 going to talk about required reporting values.
17 We've spoken with you about these topics
18 previously, we've gone away and done some more
19 work, and we're back to you with some answers at
20 this point.

21 Relative to the pesticide issue, we
22 received another letter from the Department of
23 Agriculture listing three new pesticides that they
24 had found in our groundwater supplies around the
25 state, and they asked us to develop standards as

100
1 there are no federal standards. Typically this
2 process takes like three, four months, but we sort
3 of did everything right, and managed to get this
4 done in about two months.

5 So I'm going to talk to you a little bit
6 about those pesticides. The first one is
7 Dichlorprop-p. It was detected in Helena and
8 Billings. It is an emergent broad leaf weed
9 herbicide, and we use a whole lot of it here in
10 the United States. I have here a figure of four
11 million pounds of Dichlorprop used annually. It
12 was up to about six million as of this morning. I
13 looked at the numbers this morning. That's about
14 two tablespoons for every man, woman, and child in
15 the United States, so we really hate weeds.

16 About 60 percent of this is used on
17 residential lawns, so the probable source is
18 residential treatment of lawns. This product has
19 no agricultural use. We've gone through -- It's
20 classified as a toxin, and we've derived an
21 interim human health standard of .3 milligrams per
22 liter.

23 That calculation has been approved or
24 verified by the EPA. We have a letter verifying
25 the calculation. So this is ready to move ahead.

1 And when we get all of this together, we came to
2 you previously to talk about 14 other pesticides
3 and the calculations that we did on those last
4 August, and we'll add these three to the list, and
5 bring this forward as an entire package for DEQ7
6 in 2012.

7 Myclobutanil is a fungicide which was
8 from the Billings area, and it has got a very
9 narrow use, and it's not a very common fungicide.
10 It's used on things like strawberries, and
11 raspberries, and mostly berry crops. I'm not
12 really sure who is using it, but it's in our
13 groundwater supply now. It is also a toxin, and
14 the standard is, the interim standard is .2
15 milligrams per liter. And again, it's been
16 approved by Region 8, so we're ready to go with
17 that one.

18 Fipronil is an insecticide. It is
19 widely used. It will kill anything with six legs
20 basically. And it's also used in turf products to
21 just kill all the insects on your lawn. But one
22 of the most common uses -- I was kind of surprised
23 at this -- is tick collars for cats and dogs.

24 The kicker is that this is a carcinogen,
25 and our interim human standard is .001 milligrams

1 per liter, so it's about two orders of magnitude
2 lower than the other compounds that we're talking
3 to you about. And again, the calculation has been
4 verified by Region 8, so we're ready to go ahead
5 with that.

6 So that's it for pesticides. We're
7 going to spend a couple minutes talking about
8 silver next. Silver is a group of one of seven
9 compounds which in 1985 the EPA changed the
10 classification of, and suggested an averaging
11 period for. And last year, and for the last
12 version of DEQ7 which we passed in 2010, we added
13 that averaging period for six of the seven
14 compounds.

15 The compound that we left out was silver
16 because there were questions from industry about
17 it. When you add the averaging period, you cut
18 the standard in half. So we looked at that, and
19 Amy's worked with the Required Reporting Values,
20 show that we couldn't find any lab in region that
21 could measure silver at the level that would be
22 recommended by the new standard.

23 So what we've decided to do is to leave
24 the standard as it currently is, so it will not
25 include an averaging period, and the level will be

103
1 .374 milligrams per liter. So basically we're
2 going to leave it as is, and not go to an
3 averaging period, so it will be a not to exceed,
4 single measurement, not to exceed, as far as the
5 interpretation.

6 That's it for what I wanted to present.
7 Do you have any questions on pesticides or silver?

8 CHAIRMAN SELCH: So in both of these
9 cases, the human health standard is a lot more
10 restrictive than the aquatic life, I assume.

11 MR. McNEIL: For?

12 CHAIRMAN SELCH: For the pesticides you
13 just talked about.

14 MR. McNEIL: We don't have aquatic life
15 standards. These are human health standards. The
16 Office of Pesticide Planning is trying to develop
17 aquatic life standards. They have not been
18 accepted by the EPA because of differences in the
19 methods by which the toxicology measurements are
20 made.

21 So it will be supposedly this year that
22 they reconcile the two methodologies, and we have
23 over 100 pesticides in DEQ7 that could add aquatic
24 life standards once the disparity is reconciled.

25 So there is the potential for a big

1 change in terms of the number of aquatic life
2 standards that we have, and there is a big
3 difference -- In most cases, the aquatic life
4 standard is two to three orders of magnitude lower
5 than the human health standard for most
6 pesticides, because obviously it's designed to
7 kill insects, most of them. The effects can be
8 profound. And we'll come to the WPCAC with that
9 list when EPA will approve them.

10 MS. STEINMETZ: I'm Amy Steinmetz with
11 the Water Quality Standards Section, and I'm going
12 to talk about what we're doing with the RRV's.
13 And before I go into why we're revisiting this,
14 because we've talked to you about it before, I
15 want to go over the definition because I'm going
16 to talk about a lot of acronyms.

17 An RRV is the Required Reporting Value,
18 the detection level that must be achieved in
19 reporting surface water, or groundwater
20 monitoring, or compliance data to the Department
21 unless otherwise specified in a permit approval or
22 authorization issued by the Department. So that's
23 the detection limit that we need to see from the
24 labs reported to us.

25 And you've seen that definition in Rod's

105
1 talk before. You've also seen these first three
2 rules. I just want to go over them briefly.

3 The first one is that the RRV's that we
4 report in DEQ7 have to be based on methods that
5 are 40 CFR 136 approved, or they could be another
6 method approved by the Department.

7 That No. 2 rule there is really the
8 first active step that we do in calculating RRV's.
9 We go to the labs; we ask them for their detection
10 limits for the pollutants. And I'm going to go on
11 to No. 3, and then I'll kind of come back and talk
12 about two and three together as I'm talking about
13 why we're redoing these.

14 Those MDL's are based on studies that
15 the labs do, running very low levels of pollutants
16 to come up with what is the lowest level that they
17 can detect by their methods. And we use those
18 MDL's to calculate the RRV's. We take the MDL's
19 that are provided to us, take the 75th percentile,
20 and multiply that by 3.18.

21 Now, why are we revisiting this? During
22 our review of the RRV's, we found some fairly
23 significant issues with the lab data that we were
24 using to calculate RRV's. We found some missing
25 units, so we weren't sure exactly what units we

1 were in.

2 We also found that some of the labs
3 didn't report what method they were actually
4 giving us, because the first time that we went out
5 and asked for MDL's, we asked for the most
6 sensitive method, MDL's for the most sensitive
7 method that the lab could do. Well, not all labs
8 do the same methods, so we were getting some very
9 sensitive numbers, very low numbers; we were
10 getting other numbers that were higher.

11 So the RRV's that were being calculated
12 were a little bit watered down, so that was
13 another issue that we were finding with these
14 RRV's.

15 And another one that kind of brought us
16 to the point of deciding to go out to get these
17 numbers again, is that we were looking at a lot of
18 data from 2010. We're in 2012 now. We thought we
19 might as well go out, get the updated numbers, and
20 go from there.

21 So that's what we did. We went to the
22 labs. We asked them to send us not just the
23 lowest level this time, but to submit all of the
24 methods, MDL's for all of the methods, for all of
25 the approved methods for the pollutants in DEQ7.

1 So we then took all of that data, and we
2 required that it be submitted electronically -- a
3 little bit faster for us to do our calculations --
4 and reduced our risk for error on our part. And
5 we required that they report units, and we
6 required that they report which methods they were
7 giving us the numbers for.

8 So with all of that data, we compiled
9 it, we sorted by pollutant, and then method, and
10 then we calculated RRV's by method under each
11 pollutant. So before we only had one RRV for each
12 pollutant. Now we have anywhere from one to five
13 RRV's per pollutant.

14 So why we're here. We had to come up
15 with some new decision criteria to decide which
16 RRV we were going to put into DEQ7.

17 So Rule 4. This is the rule that's
18 going to be applied to most of the RRV's, most of
19 the pollutants. If one or more of the calculated
20 RRV's is below the most restrictive numeric
21 standard, the calculated RRV closest to 10 percent
22 of the standard will be used as the RRV in DEQ7.

23 We use that 10 percent because it gives
24 us room to see what's present below the standard.
25 It's better for water quality assessment. If

1 we're doing any statistics on the data, we need to
2 be able to see what's there below the standard.

3 As an example of where we would use this
4 rule, we have ethylbenzene, which is an aromatic
5 hydrocarbon found in gasoline. We see
6 ethylbenzene at petroleum release sites across the
7 state, and groundwater and surface water.

8 And to show how we calculate that RRV,
9 the human health standard in surface water is the
10 most restrictive, the most sensitive standard.
11 That's 530 micrograms per liter. 10 percent of
12 that is 53 milligrams per liter. We have three
13 different methods that were reported to us, MDL's
14 that were reported to us by the labs. You can see
15 the RRV's there.

16 So we can see all of those are below the
17 standard. We look to the one that's closest to 10
18 percent. They're all below 10 percent. We take
19 the largest number, the least sensitive method, so
20 we're looking at .7 micrograms per liter for that
21 RRV.

22 The next one, we have 37 pollutants in
23 DEQ7 where we have RRV's that are all above the
24 most restrictive standard. So we had to come up
25 with some way to deal with that, and hopefully get

1 down to a lower level, because the way that the
2 RRV's are calculated, if we're looking at four
3 numbers for example, one number is going to be
4 lower, and then there is going to be a
5 progression.

6 We're taking the 75th percentile, so we
7 might be taking a number that's large enough above
8 the smallest that it brings it up above that
9 standard; whereas if we were looking at that
10 lowest number, we would meet the standard.

11 So we looked not just at the MDL's in
12 this case, we also looked at minimum reporting
13 limits, and practical reporting limits, which
14 we'll use a synonymous here; and they're similar
15 to an RRV in the way that they're calculated.
16 Those are what the labs use to come up with their
17 minimum reporting limits. So it is still using
18 the MDL -- most of the time they use the MDL's,
19 they take a multiplier, and come up with our MRL
20 -- or PRL.

21 We looked at those numbers, and some of
22 those numbers are closer to the standard,
23 sometimes below. An example of that is mercury.
24 Picture old miners at a gold mine; one of the
25 sources of mercury contamination in Montana. Here

110
1 is our calculation here. The most stringent
2 standard is the human health standard in surface
3 water. That's .05 micrograms per liter. 10
4 percent of that is .005 micrograms per liter.

5 We can see there are four methods that
6 are reported. The RRV's for all of those methods
7 are above our standard. We can't get below the
8 standard. But if we go and look at the MRL's that
9 are reported by the labs, all of the MRL's are
10 below, we would look at the one that's closest to
11 10 percent. There is actually one that's exactly
12 10 percent. So we would choose that .005
13 micrograms per liter, and use that as our RRV.

14 And then this rule is consistent from
15 what you've seen before. If none of the labs
16 report MDL's for a compound, we would use a 10
17 percent rule. And an example of this -- There
18 actually aren't very many examples of most
19 compounds have MDL's reported to us.

20 Ammonium sulphate, an herbicide, the
21 human health standard is 2,000 micrograms per
22 liter; 10 percent is 200. And because we don't
23 have any MDL's, no MRL's, or PRL's, we would use
24 200 micrograms per liter as the RRV in DEQ7.

25 And that's all that I have. If there

111
1 are any questions, I'd be happy to try to answer
2 them.

3 CHAIRMAN SELCH: Is this going to go
4 before the Board? Does this have to be a rule
5 that's adopted, or is this just for your own
6 internal use?

7 MS. STEINMETZ: I don't think at this
8 point we would be revising any rules based on this
9 since it's part of DEQ7.

10 MR. BUKANTIS: I think basically it
11 probably begs the question and the context a
12 little bit. The context is we've had several
13 briefings about DEQ7, and I think that one meeting
14 ago, there was an action item to go forward with
15 DEQ7.

16 And then what we did is we found some
17 more issues doing our quality assurance, if you
18 would, taking a close look at RRV's, and some
19 issues that we identified there. We've decided to
20 go back to the drawing board on the RRV's to start
21 from scratch, as Amy just talked about.

22 So we're holding the whole DEQ7 package
23 back, if you would, to tighten up on the RRV's.
24 We added these additional three pesticides that
25 Rod talked about. And so now to take this to the

112
1 next step, we'll be coming back to you next
2 meeting with DEQ7 again, in a tight form, with
3 three new pesticides added, and the RRV's in a
4 more solid shape, if you would.

5 CHAIRMAN SELCH: Will this list be
6 available? Do you guys have like a spreadsheet or
7 something like that?

8 MS. STEINMETZ: I have a spreadsheet,
9 and that will be available for the public to
10 review if requested. I don't know if we will
11 actually post that whole list on the website, but
12 it would definitely be available.

13 MR. BUKANTIS: The RRV's are part of
14 DEQ7, but they're what I would call meditative for
15 DEQ7, in that they're not part of the standards
16 per se, but they are values that people are
17 concerned about because they can influence the
18 cost of what it takes to get to the level that
19 we're prescribing as a detection limit.

20 MS. WILLIAMS: DEQ had a comment about
21 whether the RRV's should be equally applied to
22 groundwater and surface water. Did you mention
23 that?

24 MS. STEINMETZ: I didn't mention that.
25 We have talked about it, and I think that the

1 decision for this version of DEQ7 is that we are
2 not going to split those out. There are several
3 reasons for that, I think the two most compelling
4 reasons that I've considered or talked to anybody
5 about.

6 One is that the issue really isn't as
7 significant as you might think. I went through
8 DEQ7, I compared the surface water standards to
9 the groundwater standards to see if there was a
10 significant difference between the two. For those
11 where there was a significant difference, I went
12 to the RRV calculations to see if there would
13 really be a difference in an RRV for surface water
14 versus groundwater.

15 There were only eleven pollutants where
16 there would be differences, and for some of those,
17 there would be a cost difference. For others
18 there wouldn't. So it's not a very significant
19 issue as far as numbers go.

20 And then the other thing is I am not
21 aware of many situations where somebody sampling
22 groundwater would really be held to the RRV in
23 DEQ7. Permitting has some latitude. You don't
24 have latitude?

25 MS. CHAMBERS: We do. We can

1 demonstrate or provide another RRV at a higher
2 level if it still demonstrates compliance with our
3 permit limit.

4 MS. STEINMETZ: So you guys have the
5 latitude. Remediation I don't think uses RRV's in
6 DEQ7 at all, and they do a lot of groundwater
7 monitoring.

8 Our bureau mostly does surface water
9 monitoring, and the groundwater monitoring, I
10 think it would be in situations where there would
11 be mixing. In that case, we would want to see the
12 lower levels anyway.

13 Then the only program that I'm really
14 not sure about is drinking water. Are they held
15 to the RRV's in DEQ7? Does anybody know? No. So
16 it really is something that --

17 MS. WILLIAMS: Have you gotten back to
18 the commenter with that kind of --

19 MS. STEINMETZ: We haven't yet.

20 MS. WILLIAMS: But you intend to.

21 MS. STEINMETZ: (Nods head) You haven't
22 said anything back to them, have you, Rod?
23 Whoever provided that comment on --

24 MR. McNEIL: This is Hydrometrics.

25 MS. STEINMETZ: Oh, you did?

1 MR. McNEIL: Yes. We've gotten back to
2 them to discuss that issue.

3 MS. WILLIAMS: Then just real quick.
4 Will this result in any shortage of labs being
5 able to do what we need them to do?

6 MS. STEINMETZ: There are a couple of
7 pollutants, mostly pesticides, that have really
8 low, low standards; and the only lab in some cases
9 that can meet those standards is the Department of
10 Agriculture lab. So there are a couple of
11 pollutants in that category, the pesticides where
12 it would preclude some of the other labs from
13 being able to do the analysis. And other than
14 that, most of the labs can meet the standard.

15 And in some cases, there was only one
16 lab that even reported, so it's hard to say. It
17 may be that some pollutants can't be tested by
18 some labs.

19 CHAIRMAN SELCH: I've dealt with that a
20 little bit. I've asked some of the local labs,
21 and it's not cost effective for them to be looking
22 at this. It's so infrequently that they're
23 testing it to get down to the levels that they
24 need to look at. The Department of Agriculture
25 lab is the one.

1 Anyone else have questions?

2 (No response)

3 CHAIRMAN SELCH: Mark, did you have a
4 comment?

5 MR. BOSTRUM: No. It was covered.

6 CHAIRMAN SELCH: Thanks. Our next
7 agenda item is public comment, and I don't see
8 anyone that's not with DEQ in the audience, so I'm
9 assuming there is no public comment.

10 During the break we had an informational
11 item that came up, and Bob is going to quickly
12 mention that.

13 MR. BUKANTIS: Just kind of a heads up
14 for the council. I think it was House Bill 141,
15 if I remember correctly, in the last legislative
16 session directed some of the legislative
17 committees.

18 The one that is of interest for this
19 group is the Environmental Quality Council, and
20 what EQC is going to be doing is looking at a
21 bunch of advisory councils, including Water
22 Pollution Control Advisory Council, and doing some
23 sort of evaluation, looking forward to potential
24 future legislation on whether they think the
25 council is I guess worthwhile in terms of an asset

117

1 to the state, or should be modified, or disbanded,
2 or whatever, but making some sort of
3 recommendation. And it is I think really broad in
4 scope, and that's certainly not looking
5 particularly at the Water Pollution Control
6 Advisory Council.

7 But what I want you to know, and I think
8 you probably all saw that email that I sent to
9 Hope Stockwell providing Hope -- who is EQC staff
10 -- providing Hope with your emails, and Hope
11 intends I believe to send out emails to everyone
12 on the council inviting your attendance, if you
13 would like to attend, to I believe it's the March
14 8th EQC meeting, where I think probably Mark
15 Bostrom will be speaking for DEQ to the council or
16 to the Environmental Quality Council regarding
17 WPCAC's role as an advisory council to DEQ.

18 So I just wanted to let you know about
19 that, so you'll probably be seeing an email invite
20 from Hope sometime in the near future.

21 MR. MATHIEUS: Just for the record, it
22 is House Bill 142. And yes, Hope is planning on
23 sending out invitations for Council members. And
24 just so it's clear, they're not planning on
25 setting any specific time aside.

1 The Departments, various Departments
2 that have councils that are on that agenda will
3 come up and speak to the council; and then during
4 public comment, what the hope is from the Chairman
5 of the EQC is that if there is members of either
6 the public or members of that council that would
7 like to come up and add, then that time will be
8 available at the March EQC meeting.

9 MR. BUKANTIS: Thanks, George.

10 MS. WILLIAMS: Just for disclosure, I'm
11 on the Environmental Quality Council. I just want
12 you guys to know that.

13 CHAIRMAN SELCH: Thanks, Bob. Our next
14 agenda item is our agenda for our next meeting,
15 which I think is April 20th.

16 MR. BUKANTIS: Yes, April 20th.

17 CHAIRMAN SELCH: You mentioned you're
18 going to be coming forward with the DEQ7 package.

19 MR. BUKANTIS: Yes. We plan to come
20 back again with DEQ7 as an action item. I think
21 the only substantive change you'll see is the
22 three pesticides, dropping of the silver. So that
23 should be a quick, easy item because you've heard
24 a lot about that.

25 And Todd was talking about coming

119
1 forward with nutrient trading policy. Jenny is
2 going to come forward with the rule package,
3 probably going to be pretty substantive.

4 MS. CHAMBERS: Yes.

5 CHAIRMAN SELCH: Does anyone else have
6 any items for the next meeting?

7 (No response)

8 CHAIRMAN SELCH: If anything comes up in
9 the interim, just forward those on, and we'll
10 discuss them.

11 With that, I guess it looks like we're
12 done. Motion to adjourn.

13 MR. SALLEY: So moved.

14 MS. WILLIAMS: Second.

15 (Response)

16 (The proceedings were concluded
17 at 12:44 p.m.)

18 * * * * *

C E R T I F I C A T E

STATE OF MONTANA

)

: SS.

COUNTY OF LEWIS & CLARK

)

I, LAURIE CRUTCHER, RPR, Court Reporter,
Notary Public in and for the County of Lewis &
Clark, State of Montana, do hereby certify:

That the proceedings were taken before me at
the time and place herein named; that the
proceedings were reported by me in shorthand and
transcribed using computer-aided transcription,
and that the foregoing - 119 - pages contain a
true record of the proceedings to the best of my
ability.

IN WITNESS WHEREOF, I have hereunto set my
hand and affixed my notarial seal
this _____ day of _____, 2012.

LAURIE CRUTCHER, RPR

Court Reporter - Notary Public

My commission expires

March 9, 2016.

| | | | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>0</p> <p>001 101:25 005 110:4, 110:12 05 110:3</p> <p>1</p> <p>1 64:8, 80:25 1,000 39:20 10 47:1, 47:5, 107:21, 107:23, 108:11, 108:17, 108:18, 110:3, 110:11, 110:12, 110:16, 110:22 10,000 78:6 100 6:24, 36:5, 89:5, 91:10, 96:14, 96:20, 103:23 10:00 1:12, 2:5 111 1:8 119 120:12 1192 1:22 12 21:11 12:44 119:17 13 12:1 136 105:5 13th 90:7 14 12:1, 101:2 141 116:14 142 117:22 145 25:16 14th 90:8 15 44:9, 45:3, 99:6 150 16:18, 17:3, 17:17 1520 1:9 17 1:11 18 29:20 185 21:9 1970s 18:8 1980s 34:11, 61:25 1985 102:9 1990s 12:18, 31:21, 35:8, 35:12 1994 59:7 1998 12:23, 28:23, 29:22, 30:16</p> | <p>1999 59:8</p> <p>2</p> <p>2 61:4, 61:5, 76:2, 101:14, 105:7 2,000 110:21 20 21:11, 30:12, 31:7, 41:17, 44:15, 47:3, 63:3, 96:17 200 5:25, 110:22, 110:24 2000's 20:2 2001 13:3 2002 13:5 2004 29:15 2005 29:15, 30:5 2007 25:9 2008 23:7, 25:9, 27:21, 30:21 2009 6:1, 13:16, 13:22, 29:23, 45:3, 88:10 2010 35:20, 36:8, 102:12, 106:18 2011 14:2, 36:8, 89:2 2012 1:11, 101:6, 106:18, 120:17 2014 55:22 2016 120:22 20th 118:15, 118:16 25 67:3 267 7:5 28 6:16, 79:2, 79:3, 80:17</p> <p>3</p> <p>3 100:21, 105:11 3.18 105:20 30 22:18, 39:3, 63:3 300 39:20 367 7:10, 41:6, 42:7, 42:15 37 108:22 374 103:1 39 30:10</p> | <p>3rd 3:3, 3:22</p> <p>4</p> <p>4 107:17 4,000 39:23 40 105:5 406 1:24 442-8262 1:24</p> <p>5</p> <p>5 96:21 5,000 78:6, 80:4, 99:9 50 34:12, 46:21 500 6:25 52 6:9, 62:22, 64:10, 65:25, 65:25 53 108:12 530 108:11 59624 1:23</p> <p>6</p> <p>60 100:16 6th 4:5</p> <p>7</p> <p>7 108:20 70 96:20 75.5.313 44:22 75th 105:19, 109:6</p> <p>8</p> <p>8 101:16, 102:4 80 47:6, 47:15 8th 117:14</p> <p>9</p> <p>9 120:22 95 6:4, 7:11, 7:13, 13:22, 41:6, 42:4, 42:8, 43:19</p> <p>A</p> <p>A-1 71:9, 71:15, 71:15, 81:3, 81:4, 81:11, 81:12 a.m 1:12</p> | <p>abatement 6:13 abatements 73:19 ability 5:11, 7:2, 7:7, 9:3, 9:9, 40:11, 52:12, 84:6, 87:2, 120:14 able 2:13, 9:22, 25:4, 25:15, 33:9, 35:15, 40:19, 44:3, 94:16, 98:16, 108:2, 115:5, 115:13 Abrahamson 58:11 Absolutely 98:21 accept 4:1, 47:25 acceptable 16:19 accepted 103:18 accompaniment 12:20 accompany 59:20 account 23:1, 33:6, 37:6, 83:24, 95:15 accountable 34:13 accountants 57:7 accounting 30:22, 36:1 ACCT 9:13 achieve 39:13, 39:25, 43:16, 81:22, 82:11 achieved 30:16, 31:6, 56:12, 104:18 achievement 29:17, 51:9, 51:14 achieving 30:12, 30:20, 31:12, 56:14 acronyms 104:16 across 6:7, 9:2, 19:10, 108:6 act 48:9, 64:1, 64:11, 64:12, 64:13, 64:15, 68:7, 68:8, 70:8,</p> | <p>87:6, 90:17 action 14:5, 23:4, 26:4, 35:14, 38:7, 45:24, 46:5, 46:25, 47:3, 49:13, 50:25, 69:5, 111:14, 118:20 actions 14:19, 28:16, 28:19, 30:24, 33:18, 38:15 active 105:8 activities 10:25, 33:8, 57:12, 93:11 add 2:18, 101:4, 102:17, 103:23, 118:7 added 3:11, 3:17, 18:9, 59:5, 60:10, 60:18, 88:2, 102:12, 111:24, 112:3 addendum 23:6 adding 17:25, 18:4, 35:9 addition 21:3, 57:24 additional 3:22, 35:10, 87:9, 97:11, 111:24 additions 3:5 address 14:15, 15:10, 51:18, 62:15, 69:2 addresses 70:13 adds 59:12, 59:13 adequate 3:6 adjacent 6:21, 7:1 adjourn 119:12 adjust 32:24 adjustment 77:14 Administrator 4:24 adopt 62:23, 90:13, 90:21 adopted 13:6, 13:22, 28:25, 48:14, 90:18, 111:5 adopting</p> | <p>40:22 adoption 12:13, 28:1, 48:21 advance 49:8 adverse 82:7 advise 45:2 advises 90:20 advisory 1:4, 44:25, 88:23, 116:21, 116:22, 117:6, 117:17 affect 16:12, 17:19 affected 14:15 affecting 53:24, 54:8 affects 17:22 affixed 120:16 affordability 83:22 against 6:6, 81:14 agencies 63:20 agency 50:15, 86:13 agenda 2:11, 2:17, 2:21, 68:15, 69:1, 116:7, 118:2, 118:14, 118:14 aggregators 85:19 aggressive 37:21 agricultural 100:19 Agriculture 99:23, 115:10, 115:24 agronomic 60:1, 60:2, 71:23, 71:25, 80:22 ahead 100:25, 102:4 alfalfa 54:4 algae 9:16, 9:18, 9:24, 16:8, 16:23, 17:2, 17:5, 17:10, 17:24, 19:17, 26:12, 26:14, 27:7, 29:9, 30:2, 31:3, 36:4, 36:8, 49:23,</p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| | | | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 56:16, 74:25 algal 15:5, 15:21, 16:4, 16:6, 16:12, 16:18, 18:13, 19:1, 24:23, 37:10 Algevolve 74:22 allocated 99:6 allocation 61:24, 92:11, 92:21, 93:18, 96:9, 96:11 allocations 84:8, 93:1 allow 6:11, 9:3, 15:13, 43:10, 44:14, 60:2, 66:1, 72:12, 74:12, 80:22, 84:11, 96:2, 96:21, 96:22 allowable 71:20 allowance 41:16 allowed 6:5, 13:24, 39:3, 42:16, 45:12, 47:5, 77:9 allowing 71:22, 85:5 allows 6:20, 14:7, 71:25, 74:16, 75:8 alluvial 37:24 alone 35:14 already 14:14, 26:18, 35:5, 46:18, 47:16, 47:17, 49:12, 59:23, 63:1, 81:5 alternatives 93:21 although 17:4, 29:10, 30:10 ambient 30:9, 31:6 Ammonium 110:20 amount 12:25, 16:10, 18:6, 19:1, 20:1, 35:6, 42:11, 73:12, 78:3, 92:12 amounts 18:9 | Amy 99:11, 99:15, 104:10, 111:21 Amy's 102:19 analysis 8:21, 20:1, 30:22, 43:24, 115:13 and/or 97:8 animal 72:3, 95:19 annually 97:14, 100:11 answering 98:25 answers 99:19 anticipate 56:1, 84:19 anymore 51:5, 53:23 anyway 38:10, 114:12 apologize 2:7 apparent 15:8 apparently 49:22, 50:4 Appendix 70:25, 71:1, 90:2 applicable 51:7 applicant 70:13 application 14:23, 15:14, 26:8, 59:23, 59:25, 60:2, 60:5, 85:24 applied 63:8, 68:3, 107:18, 112:21 applies 47:10 apply 40:14, 40:20, 40:20, 47:19, 63:12, 67:22, 85:6 applying 60:14, 93:22 appreciate 2:14, 98:25 appreciated 51:16 approach 12:11, 14:3, 24:24, 25:18, 27:1, 27:24, 61:11, 84:3, 95:9 approaches 47:24 appropriate 8:18, 19:9, | 86:7 appropriately 23:2 approval 2:25, 62:25, 63:14, 70:14, 104:21 approvals 70:9, 71:24 approve 2:21, 3:1, 4:9, 63:21, 104:9 approved 70:10, 70:17, 100:23, 101:16, 105:5, 105:6, 106:25 approves 63:13 approving 91:17 approximate 39:5, 39:22 approximately 49:7, 49:8 April 90:7, 118:15, 118:16 aquatic 14:18, 16:21, 16:22, 17:12, 17:20, 19:3, 20:25, 22:10, 27:12, 103:10, 103:14, 103:17, 103:23, 104:1, 104:3 aquifer 72:15, 72:15 areas 20:5, 20:13, 29:5 aren't 18:21, 53:11, 81:2, 110:18 argue 78:19 argument 39:7 Arizona 65:7, 65:8 aromatic 108:4 aside 117:25 asking 23:25, 95:14 asks 91:13 aspect 57:18, 57:19 aspects 81:9 assessment 107:25 | asset 116:25 assistance 4:25, 8:6, 57:20, 57:22, 83:4, 83:5 associate 16:25 associated 77:12, 79:10, 95:9, 95:23, 97:8 assume 57:8, 103:10 assumed 33:21, 66:10, 66:11 assuming 40:25, 48:25, 53:16, 116:9 assumption 50:4 assurance 111:17 attached 16:6, 30:2 attempt 12:22 attend 117:13 attendance 117:12 attended 89:4 attending 91:24 audience 116:8 augmentation 72:17 August 10:23, 101:4 authority 6:11, 41:9, 41:24, 42:4, 48:15, 51:7, 66:1, 66:6, 87:5, 90:11, 90:13 authorization 62:23, 104:22 available 18:21, 23:5, 40:12, 45:25, 49:12, 50:6, 112:6, 112:9, 112:12, 118:8 Avenue 1:9 average 35:22 averaging 102:10, 102:13, 102:17, 102:25, 103:3 awhile 55:15, 62:3 | B B-1 71:9, 71:15, 71:16, 81:4, 81:11 backed 80:9 background 19:13, 23:16, 23:19, 48:18, 83:16 bacteria 81:17, 85:3 bad 2:8 balance 55:1 ban 6:2 banker 86:17, 98:13 bar 39:6, 39:11 barrier 61:1, 61:6 barriers 61:3 base 46:21, 73:15 basement 80:9 basically 6:10, 6:19, 7:7, 9:15, 16:17, 19:8, 20:4, 26:11, 30:20, 41:16, 44:13, 47:25, 48:4, 65:25, 68:25, 87:13, 101:20, 103:1, 111:10 basin 31:8, 38:18, 61:23, 87:16, 96:14 basing 98:9 basins 43:12, 92:23 bat 65:13 batch 60:19 Bay 62:3, 87:12 became 15:8 beetles 32:15 begs 111:11 behaves 37:10 behind 27:18, 57:25, 98:23 benchmark 19:21, 21:16 beneficial 16:13, 16:16, 19:4, 63:16 benefit 9:2, 70:6, 74:5, 86:18, 93:7, | 95:5, 95:24, 97:7, 97:21, 97:25, 98:7 benthic 19:1, 24:23, 36:3 berry 101:11 best 11:24, 20:4, 21:13, 28:22, 120:13 bet 80:7 better 7:25, 15:7, 41:4, 56:4, 93:20, 107:25 beyond 16:19, 40:15, 52:10, 60:2, 71:25 Bigfork 61:12, 62:2, 62:6 biggest 10:1, 12:18, 20:8, 81:7, 87:11 bill 5:25, 6:4, 6:9, 6:10, 6:16, 6:16, 6:19, 7:5, 7:6, 7:10, 7:11, 7:13, 13:22, 14:4, 41:6, 42:4, 42:8, 42:15, 43:19, 62:22, 64:10, 65:25, 65:25, 79:2, 79:3, 80:15, 80:19, 116:14, 117:22 Billings 25:22, 37:1, 54:1, 62:12, 100:8, 101:8 Bills 12:6, 42:1, 45:12, 47:23 biochar 9:19 biodiesel 9:20 biological 34:22, 59:14, 60:20, 60:24, 62:17, 92:16 biomass 52:14 bioreactors 60:19 biostation 28:10 bit 14:12, 15:7, 19:5, 26:25, 33:14, |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| | | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 38:19, 38:21, 42:7, 43:4, 49:15, 51:19, 60:7, 66:20, 71:4, 84:17, 98:23, 100:5, 106:12, 107:3, 111:12, 115:20 Bitterroot 49:23, 51:23, 52:11, 74:23, 75:1 black 39:10 Blackfoot 29:7, 55:8, 55:10 blank 80:11 blooms 27:7 blue 87:23 BMP 95:8, 95:18, 97:5, 97:15 BMP's 8:7, 86:1 BNR 38:8, 39:15, 55:22, 59:14, 61:20, 62:8, 62:9, 62:10 board 10:5, 40:24, 45:7, 45:16, 48:14, 49:2, 49:8, 62:23, 66:1, 68:19, 69:14, 90:19, 90:21, 91:2, 111:4, 111:20 Bob 68:24, 116:11, 118:13 BOD 40:17 bodies 11:20, 16:24 body 13:9 Boise 87:20 books 11:19, 14:14, 14:18, 26:18 boosting 18:10 border 18:4 Bostrom 117:15 Bostrom's 87:3 BOSTRUM 116:5 bottom 16:7, 16:8, 16:11, | 30:2, 89:20 boundaries 7:1 boundary 79:4 Bow 54:18 box 1:22, 58:17 break 26:7, 35:10, 43:22, 82:21, 116:10 breakdowns 20:8 brief 4:6, 10:5, 12:15, 83:14 briefed 62:20 briefing 2:11, 4:13, 5:5, 69:14, 82:25 briefings 10:7, 111:13 briefly 5:8, 10:24, 11:21, 59:17, 105:2 bring 27:25, 28:14, 69:12, 76:4, 91:1, 98:2, 101:5 Bringing 16:21 brings 8:24, 109:8 broad 45:1, 100:8, 117:3 broader 70:1, 70:3 broken 71:8 broker 84:16, 98:13 brokers 86:15 brought 34:23, 35:13, 106:15 BUCKLIN-SANCHEZ 1:15, 3:14, 4:3, 31:14, 31:24, 32:13, 32:20, 33:19, 65:17, 66:9, 66:19, 66:23, 73:11 buffer 93:10 build 41:13 building 1:8, 41:13, 62:9 built 9:14, 21:8, 24:19, 40:9, 62:8, 62:10 BUKANTIS 49:9, 68:25, 69:9, 111:10, | 112:13, 116:13, 118:9, 118:16, 118:19 bumps 37:8 bunch 21:22, 57:7, 57:10, 59:5, 62:16, 67:12, 74:7, 83:22, 116:21 bureau 83:3, 83:4, 114:8 businesses 50:10 Butte 34:14, 54:13, 55:21, 61:13 buyer 84:15 buying 78:12, 78:14 buys 43:13 <hr/> C <hr/> calculate 105:18, 105:24, 108:8 calculated 106:11, 107:10, 107:19, 107:21, 109:2, 109:15 calculating 105:8 calculation 100:23, 100:25, 102:3, 110:1 calculations 101:3, 107:3, 113:12 calibrate 42:10 calibrated 24:19 calling 2:14 Campbell 58:13, 62:20, 81:4, 81:8, 82:15, 82:18 can't 5:1, 5:3, 35:21, 42:19, 43:22, 53:11, 78:6, 78:23, 78:23, 94:24, 110:7, 115:17 cannot 40:4 Canyon 27:8 capabilities 97:20 | capital 93:13 capturing 38:1 carcinogen 101:24 carried 20:22, 25:8, 25:13 case 2:8, 11:23, 11:24, 25:15, 28:15, 28:22, 38:16, 52:8, 59:5, 71:22, 86:24, 90:1, 109:12, 114:11 case-by-case 14:3, 25:2, 25:6 case-by-case-by 42:10 cases 8:17, 17:15, 23:2, 29:3, 30:17, 40:2, 44:20, 47:18, 103:9, 104:3, 115:8, 115:15 cash 98:14 catalyst 5:14 catch 44:12 category 81:4, 115:11 cats 101:23 cause 15:10 cause/effect 19:15, 20:21 central 21:25 centralized 84:15 certain 15:22, 29:3, 64:22, 79:7, 92:11 certainly 17:18, 66:16, 70:2, 85:11, 85:22, 91:19, 92:25, 117:4 certify 120:7 CFR 105:5 Chairman 1:14, 2:4, 2:20, 2:24, 3:9, 3:15, 3:21, 3:25, 4:4, 4:12, 4:15, 4:17, 4:19, 10:17, 44:8, 53:3, 54:21, 56:18, 56:21, 68:10, 73:9, 82:19, 82:24, 98:22, | 103:8, 103:12, 111:3, 112:5, 115:19, 116:3, 116:6, 118:4, 118:13, 118:17, 119:5, 119:8 challenged 63:6 challenges 63:16, 63:16 Chambers 83:11, 94:22, 95:3, 95:4, 96:8, 97:1, 98:1, 113:25, 119:4 chance 11:3, 11:6, 69:20, 94:7 change 2:17, 17:8, 34:19, 43:8, 46:24, 49:14, 59:21, 60:17, 68:1, 80:21, 90:15, 97:1, 104:1, 118:21 changed 33:8, 35:7, 68:8, 71:3, 102:9 changes 18:20, 24:14, 27:10, 30:22, 30:24, 30:25, 31:16, 37:9, 46:21, 64:2, 64:10, 68:17, 69:23, 70:7, 70:23, 90:25 changing 20:6, 50:6 chapter 64:9 charged 16:14 chart 16:1, 16:11 check 22:21, 24:10 Chesapeake 87:12 Chicago 67:14 Chief 83:3 child 100:14 chips 9:16 chlorophyll 16:10, 29:25, 30:1 choose | 53:23, 110:12 chooses 8:20 chosen 48:17 chunks 92:17 circular 26:2, 45:14, 46:16, 58:5, 58:6 circulars 12:7 circumstances 31:16 Cities 7:20, 89:12 city 8:15, 8:15, 8:20, 8:24, 93:4, 93:4 clarification 3:20, 66:2, 75:7 clarified 3:18 clarifier 61:1, 61:9 clarifiers 61:7 clarify 66:19 clarity 27:4 Clark 11:23, 12:19, 13:5, 28:13, 28:23, 34:3, 53:7, 54:18, 55:7, 55:8, 56:15, 79:18, 120:4, 120:7 classes 71:9, 71:18, 81:17 classification 102:10 classifications 82:10 classified 100:20 Claudia 46:6, 63:24, 87:6, 90:19, 91:25, 94:21 clean 48:9, 54:10 cleaning 72:5 cleans 59:11 clear 14:22, 15:15, 117:24 clearly 33:10, 77:9 climate 19:12 Clinton 56:8 close 26:25, 39:13, 56:11, 111:18 closely 48:18, 83:10 closer 30:12, 109:22 closest |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| | | | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 87:20, 107:21, 108:17, 110:10 coagulated 64:23, 71:14 collapsed 18:8 collars 101:23 collecting 21:9 collection 27:21, 57:17, 58:19 Columbia 52:2, 62:2, 62:4 column 24:13 combination 93:22 combinations 18:22 comes 40:6, 44:1, 119:8 coming 23:3, 31:4, 35:5, 38:12, 61:15, 62:13, 67:15, 67:18, 84:8, 112:1, 118:18, 118:25 comment 33:20, 52:24, 73:12, 74:7, 88:24, 89:13, 112:20, 114:23, 116:4, 116:7, 116:9, 118:4 commented 89:10, 90:18 commenter 114:18 commenters 89:25 comments 3:22, 4:5, 69:21, 89:7, 89:7, 89:10, 89:15, 90:23, 90:24, 91:23 commission 120:21 committee 6:17, 80:18, 80:18 committees 116:17 common 10:12, 27:4, 27:7, 101:9, | 101:22 commonly 15:20, 16:4 communicating 51:24, 51:25 communities 40:10, 56:7 community 16:22, 43:25, 78:23, 78:24, 82:6 compaction 72:6 companies 50:17 company 9:13, 74:11, 74:24, 74:25, 75:3 compare 22:6, 22:19 compared 51:21, 59:9, 83:21, 113:8 comparison 23:14 compelling 113:3 compiled 59:2, 107:8 complete 25:25 completed 24:1 completely 36:5 compliance 54:17, 70:10, 84:12, 92:20, 96:7, 97:8, 104:20, 114:2 component 40:6, 96:1, 97:2, 97:7 components 13:21 composition 27:10 compound 102:15, 110:16 compounds 102:2, 102:9, 102:14, 110:19 computed 90:4 computer-aided 120:11 con 87:9 concentration 20:24, 22:2, 22:3, 22:17, | 53:15, 95:16, 96:3 concentrations 19:23, 20:5, 22:1, 22:8, 26:22, 32:4, 32:7, 53:13, 76:4 concept 8:16, 50:12 conceptionally 9:5 conceptual 78:20 concern 77:24, 79:16, 95:11 concerned 26:10, 75:15, 112:17 concerns 76:10, 87:1 concluded 48:6, 119:16 concludes 48:8 conditions 53:6 conducted 84:14 conference 88:17, 89:3 Confluence 29:8 connect 74:21 connection 67:3, 70:20 Cons 86:21 consequences 78:13 conservation 85:25, 86:14, 91:19 conservative 95:9, 95:22 considerably 51:21 considered 16:18, 38:5, 47:4, 47:8, 53:9, 63:11, 63:15, 63:23, 73:22, 73:23, 113:4 consistent 15:13, 48:9, 61:16, 61:17, 65:5, 110:14 consistently 30:21, 43:17 constructed 72:11 | construction 41:12, 41:14, 57:13 constructive 72:13 consultants 58:18, 61:17, 89:11 consumptive 78:7 contact 98:25 contain 45:20, 120:12 Container 34:15, 35:2 contains 58:5 contamination 75:25, 109:25 contend 79:11 contentious 64:17, 64:18, 64:20, 65:2 context 57:7, 58:16, 69:13, 111:11, 111:12 continue 8:2 continuing 36:11, 83:25, 97:14 continuous 78:2 continuously 29:21 contrast 32:6 contributing 67:13 control 1:3, 43:11, 57:5, 57:11, 72:6, 72:24, 72:24, 116:22, 117:5 conversations 93:3 conveyance 72:25, 73:1 copies 45:22, 57:2 core 71:7, 86:3, 91:23 correct 46:6, 49:7, 50:10, 64:2, 90:19 correctly 66:18, 70:16, 116:15 correspondingly 31:3 cost 44:2, 61:10, 78:25, 78:25, 93:9, 93:13, 93:13, | 98:19, 112:18, 113:17, 115:21 costs 44:17, 86:11, 92:17 couldn't 102:20 council 1:4, 13:9, 38:6, 44:25, 45:15, 116:14, 116:19, 116:22, 116:25, 117:6, 117:12, 117:15, 117:16, 117:17, 117:23, 118:3, 118:6, 118:11 councils 116:21, 118:2 Counsel 42:1, 91:25 county 79:18, 79:18, 120:4, 120:6 couple 3:3, 5:18, 8:4, 9:10, 9:11, 15:24, 20:3, 25:12, 58:7, 58:9, 59:17, 62:20, 62:21, 64:7, 64:10, 71:5, 72:17, 72:20, 73:5, 73:6, 81:8, 102:7, 115:6, 115:10 course 47:10, 49:3, 61:20, 65:13 Court 1:21, 120:5, 120:20 cover 85:25 covered 2:9, 68:6, 116:5 cows 95:19 create 9:19 creating 5:14, 86:6 creditable 85:24 credits 85:21 CRIDER 3:18 criteria 11:1, 11:7, 11:15, 11:17, 11:19, 12:13, 12:19, | 12:25, 13:4, 13:12, 13:12, 13:14, 13:17, 14:13, 14:14, 19:6, 20:1, 23:2, 23:11, 23:15, 23:18, 23:21, 24:11, 25:16, 25:23, 26:7, 26:9, 26:15, 27:19, 27:25, 28:3, 28:7, 28:11, 28:19, 30:10, 31:11, 36:15, 37:5, 37:11, 37:15, 38:20, 39:14, 39:19, 41:10, 42:19, 44:4, 44:15, 45:18, 46:11, 46:22, 48:2, 51:10, 53:6, 58:2, 73:14, 81:13, 81:23, 82:1, 88:4, 107:15 criterion 39:3 crops 60:15, 60:15, 82:14, 82:17, 85:25, 101:11 cross 6:20, 22:21, 24:10, 45:1, 70:19, 80:3, 80:12 crossed 65:20 crossing 6:25 CRUTCHER 1:20, 120:5, 120:19 cumulative 77:3, 77:20 current 43:9, 50:24, 51:5, 58:7, 63:17 currently 8:13, 8:14, 8:22, 11:18, 47:1, 47:11, 60:5, 63:12, 71:24, 84:6, 85:5, 90:10, 91:16, 102:24 cut 102:17 cycle 14:1, 40:1 <hr/> D <hr/> dailies 37:25 dam 18:5, |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| | | | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 18:8 dark 20:13 data 19:20, 21:10, 21:21, 27:20, 29:23, 29:23, 32:18, 35:20, 36:2, 77:5, 104:20, 105:23, 106:18, 107:1, 107:8, 108:1 dates 4:7 deal 43:7, 44:18, 63:25, 80:14, 108:25 dealing 58:10 deals 60:6 dealt 115:19 decades 59:1, 84:3 decide 107:15 decided 20:2, 63:10, 84:9, 102:23, 111:19 deciding 106:16 decision 107:15, 113:1 decline 96:10 declines 96:8 decorative 72:4 deeper 24:12 Deer 34:14, 55:13, 56:8, 63:6 define 19:24, 20:6, 64:16, 66:12 defined 20:4, 42:20, 65:20, 65:24, 66:5, 85:14 defines 62:24 definitely 29:4, 29:17, 32:17, 112:12 definition 22:14, 64:15, 65:23, 75:13, 104:15, 104:25 degradation 47:9 delivery 95:6, 95:21, 97:23 demonstrate 18:24, 97:5, 97:10, 97:13, 114:1 | demonstrates 114:2 demonstrating 60:9 dense 27:13 Department 5:8, 5:20, 6:6, 6:18, 7:17, 7:20, 8:10, 8:14, 13:3, 15:8, 16:13, 42:9, 46:9, 48:11, 77:24, 84:9, 88:25, 91:13, 99:22, 104:20, 104:22, 105:6, 115:9, 115:24 Department's 69:2 Departments 118:1, 118:1 dependability 77:1, 77:25, 78:1 depending 6:23, 39:9, 39:21, 48:24, 73:25, 85:3, 97:4 depends 55:4, 84:21 depleted 76:21 depth 3:10, 3:16 DEQ 4:25, 20:23, 45:22, 50:9, 51:14, 63:13, 71:1, 76:23, 80:19, 91:5, 91:14, 112:20, 116:8, 117:15, 117:17 DEQ's 74:12 DEQ2 58:6, 58:13, 58:16, 59:7, 59:18, 59:23, 64:9, 64:19, 69:23, 73:14, 74:16 DEQ7 101:5, 102:12, 103:23, 105:4, 106:25, 107:16, 107:22, 108:23, | 110:24, 111:9, 111:13, 111:15, 111:22, 112:2, 112:14, 112:15, 113:1, 113:8, 113:23, 114:6, 114:15, 118:18, 118:20 derive 19:6, 23:18 derived 100:20 deriving 11:19, 24:6 describe 44:24 described 52:10 descriptive 23:12 design 58:3, 58:5, 58:17, 58:18, 59:3, 59:12, 60:6, 61:15, 62:17, 72:10, 73:14, 74:3, 74:12, 74:12, 76:11 designed 26:15, 79:12, 104:6 designing 5:15, 61:17 detail 10:8, 10:15, 12:5, 13:23, 15:7, 34:25, 42:8, 50:20, 59:18, 92:2, 92:8 details 49:1 detect 105:17 detected 100:7 detection 104:18, 104:23, 105:9, 112:19 detergent 6:2 determine 91:21 determined 91:5 detrimental 78:11 develop 25:16, 50:17, 74:13, 84:11, | 87:10, 88:8, 88:23, 99:25, 103:16 developed 11:8, 23:21, 58:24, 61:25, 63:19, 97:4 developing 8:16, 26:21, 58:13, 83:18, 91:24 development 10:21, 11:1, 11:16, 12:19, 12:25, 13:4, 25:24, 27:19, 27:20, 74:25, 99:14 dewatered 53:8 dewaters 77:23 dialogue 37:19 Dichlorprop 100:11 Dichlorprop-p 100:7 diet 18:20 differ 41:22 difference 71:15, 81:11, 104:3, 113:10, 113:11, 113:13, 113:17 differences 103:18, 113:16 difficult 5:2, 13:19, 38:24, 43:7, 82:10 difficulties 14:2 digester 35:11 dilute 53:13 dilution 54:11 diminished 18:17 direct 12:14 directed 116:16 direction 29:11, 48:20 directly 15:2, 19:1, 84:20 Director 88:6 disbanded 117:1 discharge 35:2, 42:22, | 54:6, 55:15, 55:19, 58:21, 94:20, 95:4, 96:2 discharger 95:15 dischargers 43:5 discharging 9:25, 53:22, 55:16, 58:22 disclosure 118:10 discuss 115:2, 119:10 discussion 49:21, 85:22 discussions 45:7, 47:22, 53:18, 54:7, 54:19, 88:18, 90:10 dishwashing 6:1 disinfected 64:24, 71:14 disinfecting 81:16 disinfection 81:20 disparity 103:24 dissolved 15:5, 17:10, 17:11, 17:19, 18:22, 24:22 distinct 37:15 distinction 65:18, 66:23 distribution 21:24 district 79:20, 80:3 districts 91:20 division 4:25, 9:7, 83:2 DNRC 62:25, 63:9, 70:14 document 23:5, 69:17, 81:14, 91:7 documented 17:14 dogs 101:23 domestic 66:24, 67:2, 67:10 dominated 17:6 domination 16:24 dose 20:25, | 22:6, 22:9, 22:16 double 53:16 down-gradient 77:21 downstream 29:13, 30:7, 53:24, 54:9, 56:2 draft 12:7, 88:8, 88:13, 88:14, 89:11, 89:14, 90:8 drafted 88:10 drafting 88:25, 91:23, 94:25, 95:1 drafts 49:14 drain 76:13 drainage 76:19 drainfields 79:4 Drake 75:2 dramatically 37:8 drawing 111:20 drawn 53:4 drinking 27:16, 70:20, 81:21, 82:5, 82:6, 83:6, 114:14 drip 72:2 drop 30:6 dropped 36:9 dropping 118:22 drought 33:15 Dude 2:9 due 14:2, 14:19, 18:19, 30:24, 33:16, 78:5, 86:25 dumb 80:11 dust 6:13, 72:6 dwelling 73:21 dwellings 73:20 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

E

EA's 99:9
EARL 1:14
earlier 12:18,
24:20, 30:1,
38:22, 96:13
eased 33:15
easement

| | | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6:21 East 1:9 eastern 20:8, 21:12 easy 118:23 easy-to-use 23:13 economic 43:24, 77:14 ecoregion 23:7, 23:8, 23:10, 23:11, 23:14 ecoregions 20:3, 20:10, 20:10, 22:23, 26:6, 26:22 ecotone 36:25 editing 91:23 edits 4:6 education 8:3, 80:14 effect 15:12, 15:19, 32:24, 32:25, 34:7, 37:6, 56:2 effective 6:8, 8:1, 31:11, 86:21, 93:9, 115:21 effectively 7:14 effects 19:3, 24:15, 26:10, 33:7, 104:7 effluent 42:20, 43:1, 54:3, 71:8 effluents 71:17 effort 5:13, 5:24, 24:25, 37:21, 42:5, 69:13 efforts 5:15, 5:21, 43:12, 69:2 eight 91:6 either 5:24, 20:22, 30:24, 87:24, 91:12, 92:13, 94:1, 118:5 electronically 107:2 element 71:12 elements 13:11 elevated 22:24 elevations | 75:16 eleven 113:15 eligible 86:2 email 3:19, 117:8, 117:19 emails 117:10, 117:11 embedded 69:3, 71:1, 81:13 emergent 100:8 encoded 44:22 encourage 91:19 Energy 9:8, 9:8 engineer 39:9 engineering 35:16 engineers 34:24, 39:8, 51:25, 57:10, 57:22, 58:12 ensure 95:23 entire 93:16, 101:5 Environmental 10:5, 48:14, 116:19, 117:16, 118:11 EPA 12:11, 15:10, 47:24, 48:8, 48:15, 57:13, 84:4, 89:9, 89:10, 100:24, 102:9, 103:18, 104:9 EQC 116:20, 117:9, 117:14, 118:5, 118:8 equally 112:21 Eric 92:1 error 107:4 especially 29:3, 30:4, 33:11, 34:7, 38:23, 40:2, 55:19, 67:12 essence 64:1 essentially 13:24, 18:15, 31:6, 41:7, 42:9, 42:18, 46:19, 58:17, 59:3, 60:25, | 61:23, 65:12, 70:22, 70:25, 71:2, 71:5, 71:8 established 87:24 establishing 13:13 estimate 98:6 estimates 47:14 etc 13:15, 15:6, 17:1, 19:13, 21:1, 24:23, 26:14, 26:20, 28:10, 30:23, 37:10, 40:18, 46:11, 49:4, 50:25, 51:3, 51:4, 51:7, 55:3, 85:3 ethylbenzene 108:4, 108:6 evaluate 93:8 evaluating 45:16, 97:17 evaluation 97:17, 116:23 evaluations 83:24 events 31:21 eventually 12:10, 76:14 everybody 5:6, 7:25, 10:19, 15:15, 50:5, 83:1 everyone 2:10, 117:11 everything 4:8, 65:4, 100:3 everywhere 19:12, 78:24 evolve 91:21 evolved 57:12 exact 34:25, 54:15 exactly 49:5, 54:20, 105:25, 110:11 example 5:22, 8:19, 15:4, 16:15, 20:14, 26:19, 29:4, 31:16, 34:16, 53:7, 54:2, 54:10, 58:6, 92:7, 92:10, 96:13, 98:2, 98:4, 108:3, | 109:3, 109:23, 110:17 examples 8:4, 85:13, 85:21, 90:1, 91:11, 93:24, 110:18 exceed 41:17, 94:17, 103:3, 103:4 Excellent 4:12 exception 28:5 exceptions 40:20 excess 13:2, 14:15, 15:5, 15:21, 15:25, 16:4, 24:21 exchange 98:9, 98:10, 98:17 excited 73:14 exclude 66:11 exclusion 65:1 exemptions 94:18 existing 8:20, 15:3, 37:22, 97:19 exists 97:6 exits 79:6 expand 9:4 expect 19:11, 22:8 expectations 20:7 expensive 43:8 experience 95:1 experts 58:7 expires 120:21 explanation 23:18 exploring 52:15 extension 41:8 exterior 79:4 external 31:15, 33:2 extremely 17:24 <hr/> F <hr/> face 78:13 facilitate 86:16, 91:8, | 94:10, 98:16 facilitating 94:14 facilitator 91:15 facilities 33:17, 34:4, 34:6, 40:18, 47:17, 57:14, 58:19, 61:21, 63:3, 72:12, 92:15 facility 29:14, 30:5, 39:15, 40:3, 49:25, 50:1, 53:11, 56:4, 60:25, 92:16, 92:18 factor 32:18, 95:12, 95:22, 95:23 factors 6:24, 14:15, 95:6, 95:8 fair 12:25, 20:1 fairly 4:6, 14:22, 22:11, 31:21, 105:22 fall 39:10, 75:10 Falls 52:2, 62:2, 62:5, 62:12 farmer 93:9, 97:13, 97:14 faster 24:12, 107:3 feasible 40:2 February 1:11, 45:5, 48:23 federal 100:1 feedback 74:9 feeding 8:7, 95:19 feel 11:10, 65:3, 92:2 felt 65:15 fence 72:23 Ferry 27:8 fertilizer 9:19 field 60:7 figure 28:8, 100:10 figuring 13:12, 97:18 filtered 71:16 filtration 81:12, 81:13 final 28:8, 48:15, 83:17, | 89:15, 90:23, 90:24, 91:1 finalized 25:12 finalizing 26:21 finally 7:10, 12:12, 25:9 financial 83:4, 86:19 finding 39:19, 106:13 fine 35:15 finish 26:25 finished 25:10, 26:24, 27:20, 28:4, 41:14, 45:6 Fipronil 101:18 fire 6:12 firefighting 72:7 fires 32:15 fish 27:10, 72:3, 72:3 fisheries 17:20, 17:23 fishery 18:7, 18:10, 37:2, 37:2 fishing 16:25 five 2:6, 64:25, 65:9, 71:8, 71:13, 77:16, 78:17, 79:24, 81:6, 91:22, 107:12 Flathead 28:6, 28:9, 61:22 flies 16:25, 17:1 Floating 52:5 flow 30:22, 31:1, 31:21, 32:24, 32:24, 53:6, 53:12, 53:16, 72:16, 85:2 flows 32:3, 32:6, 32:10, 33:3, 33:4, 33:15, 54:23 flushing 72:5, 72:7 fly 16:25 focus 13:20 focusing 96:18 folks 8:1, 10:15, 51:24, 52:11, 85:19, |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| | | | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 88:7, 89:17 footprint 61:10 force 87:2 foregoing 120:12 forest 32:14 forget 99:3 forgot 38:3, 74:10 Fork 11:23, 12:20, 13:5, 28:13, 28:23, 34:3, 53:7, 54:18, 55:7, 55:8, 56:15 formal 89:7 format 23:8 Forsyth 36:24 forth 80:25 forward 25:2, 25:19, 37:13, 48:21, 49:15, 98:3, 101:5, 111:14, 116:23, 118:18, 119:1, 119:2, 119:9 foster 51:14, 53:1 fountains 72:4 fracking 3:13 framework 87:24, 91:12, 92:4, 94:1 free 11:10, 92:2, 99:8 free-froms 14:17 frequency 27:6 front 7:22, 20:12, 69:4 FTE 86:13, 91:14 fulfill 7:8 full 58:17 functional 42:14 fund 9:10, 57:6, 83:7 funded 52:1 funding 8:5, 8:5, 51:20, 52:7, 83:10 funds 9:10, 57:11, 57:14, 92:18 fungicide 101:7, 101:9 | future 28:12, 40:22, 69:5, 76:17, 85:7, 91:4, 116:24, 117:20 <hr/> G <hr/> gaining 97:6 Gallatin 61:14 gallons 42:24 gap 39:24 gasoline 108:5 gave 7:7, 62:22, 65:25, 74:13, 99:1 general 5:19, 8:19, 14:7, 14:9, 14:22, 18:17, 22:7, 29:6, 31:22, 32:3, 42:17, 42:21, 43:2, 44:21, 45:18, 57:23 generally 15:18, 58:22, 59:11, 60:1, 63:13, 63:17, 67:5, 67:16, 67:17 geographic 19:9 geology 19:13, 22:25 George 4:21, 4:23, 11:2, 12:6, 43:14, 49:21, 83:16, 88:5, 88:6, 118:9 get-go 12:4 gets 16:2, 19:6 gives 6:10, 34:16, 107:23 giving 106:4, 107:7 glad 75:6 globally 21:4 gnashing 79:20 goals 31:12 goes 28:1, 47:3, 59:10, 60:13, 70:9, 71:17 gold 109:24 gone 21:8, 59:2, 82:16, 97:12, 99:18, | 100:19 gotten 114:17, 115:1 government 85:17, 85:18 gradient 54:4 grading 77:7 grant 41:9, 41:24, 42:9 granted 66:7 Grants 57:13 graph 39:4 gray 73:21 greater 9:4, 42:23, 43:21, 71:23, 87:16 greatly 7:17 green 20:14, 20:17, 87:23 greenhouse 9:14 groundwater 32:6, 32:11, 37:24, 58:21, 60:10, 64:5, 65:1, 76:15, 77:25, 79:6, 84:21, 97:18, 99:24, 101:13, 104:19, 108:7, 112:22, 113:9, 113:14, 113:22, 114:6, 114:9 group 7:12, 7:19, 8:9, 10:23, 12:7, 14:6, 23:25, 42:16, 44:24, 44:25, 45:22, 46:4, 48:13, 48:22, 51:1, 52:19, 52:22, 53:21, 58:2, 83:11, 86:14, 88:19, 88:22, 89:17, 90:20, 91:23, 102:8, 116:19 groups 7:19, 85:18, 91:13, 91:20 grow 9:24 growing 9:16, 9:18, 54:4 grows 16:8 growth 15:5, 15:22, 16:5, 16:6, 16:12, 18:1, 18:13, | 18:16, 18:19, 19:2, 24:23, 26:13, 31:8, 37:10 guarantee 97:24 guarantees 79:22 guess 2:16, 31:20, 33:20, 50:3, 50:8, 51:12, 63:9, 76:9, 76:16, 78:9, 87:20, 88:17, 90:14, 92:9, 93:23, 116:25, 119:11 guessing 73:17 guidelines 72:10 guys 5:1, 52:22, 62:20, 65:3, 73:12, 98:2, 98:23, 112:6, 114:4, 118:12 <hr/> H <hr/> habitat 85:23 half 23:17, 88:16, 99:11, 102:18 halfway 62:6, 62:10 halves 29:7 handed 64:7, 64:8, 90:9 handle 92:19 handling 25:5 happen 52:16 happened 14:10, 42:8 happening 77:14 happens 28:21, 32:3 happy 111:1 hardly 77:11 hardship 50:14 harvested 60:15 harvesting 9:18 hasn't 30:16, 97:12 hatchery 72:3 hate 100:15 haul 28:18 haven't 24:3, | 26:8, 29:12, 62:12, 75:4, 77:11, 94:7, 114:19, 114:21 having 20:19, 45:6, 51:25, 63:25, 92:15, 93:3, 98:3 he's 99:9 heads 79:21, 116:13 headwater 83:20 health 26:19, 79:8, 81:9, 81:25, 82:7, 100:21, 103:9, 103:15, 104:5, 108:9, 110:2, 110:21 hear 66:21 heard 1:8, 41:23, 75:4, 83:23, 118:23 hearing 2:20, 3:25, 68:18 hearings 49:4 heavily 6:18, 14:6, 53:7 heavy 52:13, 85:2 held 88:16, 89:3, 90:7, 113:22, 114:14 Helena 1:10, 1:23, 8:15, 62:9, 62:10, 80:4, 93:5, 100:7 Hello 83:1 helpful 36:19, 50:9, 50:15, 57:1 helping 50:16 helps 21:16 herbicide 100:9, 110:20 here's 87:18 hereby 120:7 herein 120:9 hereunto 120:15 Hey 78:16, 93:8 higher 18:12, 22:12, 31:21, 32:4, 32:6, 32:7, 33:3, 33:3, 33:4, 33:14, 94:20, | 96:3, 106:10, 114:1 highly 82:9, 82:9 hire 91:14 hit 29:12, 29:13 hold 99:7 holding 111:22 homes 75:9 hook 8:20, 9:23, 37:21, 93:6 hooked 37:25, 97:10 hooking 95:17, 97:9 hope 90:25, 117:9, 117:9, 117:10, 117:10, 117:20, 117:22, 118:4 hopefully 49:2, 49:3, 91:1, 98:1, 108:25 hoping 11:4, 88:1 hovering 36:9 huge 73:12, 80:14, 80:14 Huh 80:11 human 14:19, 26:19, 30:24, 100:21, 101:25, 103:9, 103:15, 104:5, 108:9, 110:2, 110:21 hydraulic 61:8 hydrocarbon 108:5 Hydrometrics 114:24 hypothetical 92:7 <hr/> I <hr/> Idaho 18:4, 88:12 idea 13:17, 42:18, 44:13, 67:17, 78:20, 85:7, 95:25 ideas 93:24 identified 111:19 identify 19:9 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| | | | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>immediately 37:12</p> <p>impact 15:3, 15:5, 27:3, 33:21, 77:4, 84:1, 97:17</p> <p>impacted 18:19, 22:15, 24:21</p> <p>impacting 60:9</p> <p>impacts 22:10, 27:4, 77:5, 77:20</p> <p>impaired 86:10</p> <p>impairments 85:3</p> <p>implement 5:12, 6:7, 7:14, 44:15, 46:9, 90:11, 97:15</p> <p>implementation 5:11, 6:5, 12:3, 13:20, 38:20, 40:6, 48:2, 86:25</p> <p>implemented 28:20, 43:12, 90:5</p> <p>implementing 48:10, 93:5</p> <p>implication 28:16</p> <p>implications 38:15</p> <p>improve 44:17, 50:13, 55:2, 84:4, 93:10</p> <p>improvement 55:7, 56:3, 93:19</p> <p>improvements 29:5, 30:18, 30:19, 30:24, 33:17, 34:6, 86:19</p> <p>in-stream 53:12, 54:23</p> <p>inability 41:1</p> <p>inaudible 81:6</p> <p>include 66:5, 90:12, 91:8, 91:14, 93:1, 102:25</p> <p>included 36:2, 89:9</p> <p>including 116:21</p> <p>incomplete</p> | <p>12:16, 23:24</p> <p>inconsistent 14:23, 68:11</p> <p>incorporate 84:6, 98:5</p> <p>incorporated 97:3</p> <p>incorporates 64:19</p> <p>incorporating 84:19</p> <p>increase 9:1, 18:1, 31:8, 35:3, 96:16, 96:20, 96:22</p> <p>increased 7:17, 7:23, 27:6</p> <p>incur 78:14</p> <p>indications 12:2</p> <p>indirect 15:11, 72:16</p> <p>indirectly 15:2</p> <p>individual 8:5, 43:20, 43:23, 44:3, 45:19, 67:4, 73:20, 73:21, 73:24, 75:9, 76:13, 77:3, 77:8, 77:8</p> <p>industrial 66:6, 66:11, 66:17, 72:8</p> <p>industry 66:25, 67:7, 67:13, 102:16</p> <p>influence 32:5, 32:10, 32:15, 33:22, 34:18, 37:7, 40:3, 88:24, 112:17</p> <p>information 11:6, 21:5, 21:15, 21:20, 22:21, 24:9, 83:23, 89:18, 89:21</p> <p>informational 116:10</p> <p>infrastructure 78:25</p> <p>infrequently 115:22</p> <p>initial 11:6</p> <p>injection 72:16</p> <p>innovative 74:17</p> <p>insect 16:22</p> | <p>insecticide 101:18</p> <p>insects 16:24, 17:5, 17:20, 22:10, 101:21, 104:7</p> <p>insignificant 46:20, 47:4</p> <p>inspections 57:20, 57:21</p> <p>installed 77:19, 77:19</p> <p>instead 9:25, 27:13, 44:5, 92:15</p> <p>instrumental 58:10</p> <p>intend 114:20</p> <p>intended 91:12, 93:25</p> <p>intends 92:4, 117:11</p> <p>intensely 21:10</p> <p>intent 14:21, 69:1, 90:16</p> <p>interest 88:21, 116:18</p> <p>interested 45:23, 89:5</p> <p>interesting 49:20</p> <p>interim 6:17, 80:18, 99:13, 100:21, 101:14, 101:25, 119:9</p> <p>internal 35:15, 111:6</p> <p>internet 45:21</p> <p>interpretation 103:5</p> <p>introduce 58:9, 69:19, 84:10, 89:16</p> <p>introduced 83:17</p> <p>introducing 8:22</p> <p>introduction 5:6</p> <p>inversely 33:5</p> <p>invitations 117:23</p> <p>invite 117:19</p> <p>inviting 117:12</p> <p>involve 42:12</p> <p>involved 7:18, 14:7, 52:3, 52:6, 52:7, 58:1,</p> | <p>86:12, 91:5</p> <p>irrigate 78:6</p> <p>irrigating 82:17</p> <p>irrigation 6:13, 63:2, 63:7, 71:21, 72:2, 72:2, 78:5, 80:22</p> <p>Islands 52:5</p> <p>isn't 41:2, 49:19, 94:13, 113:6</p> <p>issuance 48:8</p> <p>issue 6:22, 10:1, 24:5, 24:7, 39:1, 48:7, 53:25, 63:5, 63:7, 64:17, 64:18, 81:10, 83:25, 99:21, 106:13, 113:6, 113:19, 115:2</p> <p>issued 104:22</p> <p>issues 8:10, 10:16, 14:24, 48:25, 63:21, 89:6, 105:23, 111:17, 111:19</p> <p>item 2:24, 4:19, 45:24, 68:15, 69:1, 86:6, 111:14, 116:7, 116:11, 118:14, 118:20, 118:23</p> <p>items 2:11, 4:13, 49:13, 69:4, 69:5, 119:6</p> <p>itself 13:1, 13:7, 29:7, 92:3</p> | <p>K</p> <p>Kalispell 62:2, 62:4</p> <p>Karen 1:15, 3:9, 68:9</p> <p>Kathleen 1:15, 3:4, 51:19, 78:10</p> <p>keeping 5:19</p> <p>key 5:10, 5:18, 20:21, 71:12, 79:17, 80:1, 82:2</p> <p>kick 49:4</p> <p>kicked 12:23</p> <p>kicker 101:24</p> <p>Kilbreath 76:7, 76:23, 78:19, 79:17, 80:17, 80:19</p> <p>kill 81:16, 101:19, 101:21, 104:7</p> <p>kinds 27:17, 31:10</p> <p>knock 35:16</p> <p>known 14:17</p> <p>Kootenai 18:3</p> <p>Koutenai 18:6</p> | <p>6:21, 76:21</p> <p>Landscape 72:2</p> <p>largely 33:16, 42:15</p> <p>larger 11:2, 36:12, 58:23, 67:5, 77:15</p> <p>largest 32:25, 54:22, 108:19</p> <p>later 3:17, 11:5, 14:8, 26:3, 28:25, 45:13</p> <p>latest 45:23, 50:24</p> <p>latitude 113:23, 113:24, 114:5</p> <p>Laurel 37:1</p> <p>LAURIE 1:20, 120:5, 120:19</p> <p>Lavigne 50:1, 56:22, 56:23, 57:4, 61:5, 64:6, 64:21, 65:19, 65:23, 66:15, 66:21, 67:1, 67:9, 67:24, 68:2, 68:5, 68:11, 68:21, 69:12, 69:25, 70:2, 73:24, 74:4, 74:15, 74:22, 74:25, 75:4, 75:6, 75:12, 75:19, 75:21, 75:24, 76:1, 80:23, 81:3, 81:5</p> <p>law 44:21, 45:12, 59:21, 77:10</p> <p>lawn 78:6, 101:21</p> <p>lawns 100:17, 100:18</p> <p>laws 44:14, 44:22, 48:16</p> <p>lead 15:25, 27:14, 32:4, 32:7, 38:17, 86:13</p> <p>leads 15:22, 27:5, 27:9, 38:25</p> <p>leaf 100:8</p> <p>League 7:20</p> <p>least 43:10, 51:24, 65:15, 108:19</p> <p>leave 10:14,</p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| | | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 76:5, 102:23, 103:2 led 5:20, 5:24, 42:16 legal 42:1, 46:2, 47:24, 83:11, 87:2, 88:7, 90:11, 91:25 legislation 5:22, 5:23, 7:4, 10:11, 73:18, 88:20, 116:24 legislative 7:16, 14:5, 79:1, 116:15, 116:16 Legislature 62:22 legs 101:19 less 43:4, 44:4, 64:24, 71:13 lesser 71:17 let's 8:21, 21:22, 21:23, 22:17, 28:13, 36:18, 46:25, 47:1, 47:6, 96:17 letter 99:22, 100:24 Leu 1:17, 82:23 level 5:2, 7:3, 17:2, 19:2, 76:2, 83:22, 94:20, 102:21, 102:25, 104:18, 105:16, 106:23, 109:1, 112:18, 114:2 levels 16:12, 16:18, 16:23, 17:5, 17:10, 17:18, 17:24, 18:12, 18:19, 22:24, 26:12, 31:3, 36:8, 42:20, 43:17, 56:16, 105:15, 114:12, 115:23 Lewis 79:18, 120:4, 120:6 Libby 18:5 liberal 37:12 lies 5:11 | likely 96:10 limit 39:6, 39:22, 64:24, 65:10, 78:4, 92:11, 94:23, 94:24, 94:25, 104:23, 112:19, 114:3 limitations 53:10 limited 51:21 limiting 7:1 limits 39:8, 79:3, 83:25, 105:10, 109:13, 109:13, 109:17 lined 35:21, 77:20 lines 72:12 link 19:1, 89:17, 89:19, 90:6 linked 89:21 listed 86:1 listing 99:23 liter 22:18, 30:11, 39:4, 39:21, 42:25, 42:25, 44:6, 65:9, 71:13, 100:22, 101:15, 102:1, 103:1, 108:11, 108:12, 108:20, 110:3, 110:4, 110:13, 110:22, 110:22, 110:24 literature 17:22, 18:14, 18:15, 20:23 Livingston 25:22 load 8:25, 9:1, 34:13, 83:25, 84:8, 84:22, 92:11, 92:11, 92:19, 92:20, 93:1, 93:18, 95:7, 96:4, 96:10, 96:14, 96:16, 96:18, 96:19, 96:20, 97:11, 97:19, 97:25 loading 53:15, 86:9, 93:12 loadings 8:12 | loads 29:2, 83:13, 86:22, 87:5, 98:17 loan 57:15 local 85:17, 91:20, 115:20 localized 21:6 locally 35:25, 52:6 located 79:13 location 97:12 Lodge 34:14, 55:13, 56:8, 63:6 LOESS 35:25 longer 6:19, 12:1, 13:25 looking 2:16, 3:12, 8:10, 9:6, 15:6, 19:8, 20:2, 24:16, 26:3, 45:15, 46:23, 48:21, 61:13, 61:14, 86:23, 88:11, 94:25, 106:17, 108:20, 109:2, 109:9, 115:21, 116:20, 116:23, 117:4 looks 2:5, 21:24, 23:16, 46:1, 98:6, 119:11 loss 27:4 lots 79:20 low 16:23, 17:9, 17:24, 17:24, 43:16, 53:6, 54:16, 83:20, 86:22, 105:15, 106:9, 115:8, 115:8 lower 25:7, 25:14, 32:9, 33:4, 36:22, 36:24, 37:5, 37:7, 37:11, 51:8, 55:7, 65:10, 93:12, 102:2, 104:4, 109:1, 109:4, 114:12 lowest 105:16, 106:23, 109:10 Lumber's 9:15 | lumberyard 9:17 <hr/> M <hr/> macrophytes 27:12 magnitude 102:1, 104:4 main 59:22, 78:7 mainly 9:19, 70:3, 87:14 maintain 43:9 maintained 79:12, 79:25, 80:1 maintenance 79:19, 79:22, 80:2 major 29:1, 34:5, 34:14, 60:16, 62:7 majority 47:13 makes 7:25, 24:11 making 67:20, 72:17, 73:5, 96:3, 117:2 manage 9:8, 57:4 managed 100:3 management 33:7, 57:21, 86:2 manager 5:3 manages 83:6 manifest 16:4, 24:15, 26:10 manifested 29:10 manner 6:8 manpower 87:9 map 23:9 March 10:6, 117:13, 118:8, 120:22 Mark 87:3, 91:25, 116:3, 117:14 marked 34:7 market 84:3, 91:20 Maryland 88:14 Maryland's 88:11 MASSMAN | 46:7, 64:3, 65:22, 65:24, 66:13, 87:7, 90:20, 94:23 Mathieus 4:21, 4:22, 4:24, 37:17, 51:18, 96:12, 117:21 matter 58:20 mature 43:14 maximal 26:13 maybe 9:22, 48:24, 49:2, 52:6, 54:5, 57:1, 59:18, 68:23, 69:12, 69:19, 84:11, 93:20, 93:21 MBR 60:24 MBR's 60:21 McNeil 99:5, 99:10, 103:11, 103:14, 114:24, 115:1 MDL 109:18 MDL's 105:14, 105:18, 105:18, 106:5, 106:6, 106:24, 108:13, 109:11, 109:18, 110:16, 110:19, 110:23 means 16:7, 33:3, 33:4, 56:5, 90:14 meant 47:23 measure 30:2, 33:1, 102:21 measured 16:9, 32:19 measurement 103:4 measurements 33:1, 103:19 measuring 16:7 mechanisms 52:9 mechanistic 24:17 meditative 112:14 meet 7:20, 12:22, 13:19, | 38:24, 41:13, 41:18, 42:19, 43:22, 47:16, 48:3, 53:11, 64:24, 75:12, 93:17, 109:10, 115:9, 115:14 meeting 2:4, 3:23, 4:2, 4:6, 4:7, 7:21, 14:3, 43:3, 45:4, 45:9, 48:22, 52:1, 53:20, 69:14, 79:6, 82:1, 84:13, 91:2, 94:18, 111:13, 112:2, 117:14, 118:8, 118:14, 119:6 meetings 3:3, 48:23, 88:17, 89:2 members 1:14, 117:23, 118:5, 118:6 membrane 60:19, 60:24, 60:25 memo 47:25, 94:9 Memorandum 63:19 mention 38:3, 50:18, 51:16, 112:22, 112:24, 116:12 mentioned 11:2, 12:6, 19:16, 20:19, 26:8, 28:23, 31:15, 31:17, 32:13, 43:14, 51:23, 52:2, 62:19, 85:21, 88:5, 89:8, 90:1, 92:23, 118:17 mentions 97:22 mercury 109:23, 109:25 met 13:25, 41:21, 45:3, 58:14, 65:12 metals 85:2 Metcalf 1:8 meter 16:10 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| | | | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| method 105:6, 106:3, 106:6, 106:7, 107:9, 107:10, 108:19 methodologies 103:22 methods 103:19, 105:4, 105:17, 106:8, 106:24, 106:24, 106:25, 107:6, 108:13, 110:5, 110:6 MGD 43:21 Miami 87:16 MICHAEL 1:16 micrograms 22:18, 30:11, 39:4, 39:20, 108:11, 108:20, 110:3, 110:4, 110:13, 110:21, 110:24 microns 61:4, 61:5 mid 22:3 middle 20:14, 21:23, 62:6 midges 17:7 midwest 59:1 Mike 4:20, 10:17, 31:14, 36:12, 56:19, 58:1, 58:11, 62:16, 69:5, 74:9, 83:17, 83:23, 89:8, 92:23 Mike's 68:22 mile 25:16 milligram 42:24, 44:6 milligrams 42:25, 44:9, 65:9, 71:13, 81:6, 100:21, 101:15, 101:25, 103:1, 108:12 million 42:23, 100:11, 100:12 mind 65:2, 98:24 | mine 109:24 miners 109:24 minimal 6:14 minimized 86:11 minimum 109:12, 109:17 minute 16:1, 29:17, 82:21 minutes 2:25, 3:1, 3:23, 4:2, 4:5, 4:9, 99:6, 99:11, 102:7 missing 105:24 Missoula 6:3, 8:15, 29:3, 29:13, 31:9, 34:15, 37:20, 38:9, 39:17, 56:1, 56:4, 62:8, 93:4 Missouri 36:14 mistaken 65:21 Mitchell 1:17, 2:6, 2:14, 3:18, 82:23 mix 93:23 mixed 17:4, 18:15, 32:12 mixing 6:19, 6:20, 6:24, 30:8, 79:3, 114:11 model 25:10, 25:18 modeling 25:3, 27:1, 27:24 models 24:17, 24:18, 25:3 modifications 3:2 modified 70:19, 85:8, 117:1 modify 70:19 moment 28:14 monetary 98:9, 98:10, 98:17 money 86:6, 86:6, 86:16, 92:17 monitored 29:21, 29:22, 31:4 | 31:4 monitoring 36:3, 36:10, 60:12, 67:16, 70:11, 73:2, 87:1, 97:8, 104:20, 114:7, 114:9, 114:9 Montana 1:10, 5:16, 15:19, 18:4, 20:9, 21:13, 38:18, 38:23, 39:3, 39:14, 44:14, 67:12, 76:25, 77:10, 77:14, 79:18, 80:13, 84:10, 86:23, 88:9, 89:12, 92:22, 109:25, 120:2, 120:7 Montana's 59:4, 93:14 month 24:1, 47:22, 49:9, 74:8, 90:25 monthly 48:24 months 25:13, 28:17, 38:12, 69:18, 100:2, 100:4 morning 4:22, 10:19, 10:20, 57:2, 100:12, 100:13 mostly 101:11, 114:8, 115:7 motion 2:21, 4:9, 119:12 Mountain 20:12 mountainous 20:10 mountains 36:14 move 4:1, 47:7, 100:25 moved 2:22, 4:4, 4:7, 4:10, 119:13 movement 82:16 moving 29:11, 37:13, 94:13 MPDES 84:20 MRL 109:19 MRL's 110:8, 110:9, 110:23 | MT 1:23 multi-piece 68:16 multiplier 109:19 multiply 105:20 municipal 58:23, 63:4 municipalities 6:11, 34:4, 34:5 municipality 96:15, 96:19 Myclobutanil 101:7 myself 91:25 <hr/> N <hr/> named 120:9 narrative 14:16, 14:21, 14:24, 15:4 narrow 101:9 narrowing 67:25 national 40:15, 40:16, 82:16 nationally 10:2, 15:9, 19:10, 21:4 natural 19:12, 23:15, 72:13, 77:24 naturally 20:6, 22:24 nature 36:3 neat 5:13, 8:13 necessarily 12:10, 96:6 needed 35:9, 42:2, 42:3, 69:10, 87:10 needs 59:4, 78:11, 86:5 negotiations 7:8 neighboring 77:23 net 9:2, 93:6, 95:5, 95:24, 97:21, 97:24, 98:6 network 21:9 NEUMAN 1:15, 67:7, 75:7, 75:15, 75:20, 75:22, 75:25, 76:9, 78:9, 79:16, 80:15, 98:8 | nice 28:15, 44:12 nitrate 26:19, 65:14 nitrogen 14:25, 29:25, 30:19, 31:18, 31:25, 32:4, 32:16, 32:25, 33:4, 33:10, 39:18, 44:9, 62:11, 64:24, 65:13, 71:12, 71:13, 79:8, 79:9, 81:6, 83:19, 85:1, 85:6, 87:15 Nods 114:21 noise 36:2 noisy 36:4 non-food 82:13 non-profit 85:18 non-profits 86:15 nondeg 45:20, 46:13, 46:14, 46:16, 46:18, 47:18, 47:20 nondegradation 65:10, 65:12, 77:4, 82:1 none 3:25, 110:15 nonpoint 8:2, 8:11, 33:22, 33:25, 37:18, 38:1, 44:19, 55:13, 85:12, 85:14, 86:1, 86:18, 86:24, 87:2, 87:4, 87:13, 87:17, 89:6, 92:22, 92:24, 93:11, 93:19, 93:24, 94:2, 94:3, 94:3, 97:11 nonsignificant 46:20 normal 50:25 normally 50:23 northern 20:16 notable 30:6, 87:11 notarial 120:16 Notary 1:21, 120:6, 120:20 | note 37:20 notes 3:16 notice 79:14 noticed 3:10 November 3:2, 3:22, 4:2 noxious 27:7 NRCS 85:18 nuisance 14:18, 26:14 numbers 3:11, 28:9, 29:23, 34:25, 51:4, 51:9, 86:23, 90:5, 93:14, 100:13, 106:9, 106:9, 106:10, 106:17, 106:19, 107:7, 109:3, 109:21, 109:22, 113:19 numeric 5:9, 10:22, 11:17, 14:13, 15:4, 46:21, 58:2, 83:18, 88:4, 107:20 nutrient 4:20, 5:9, 5:17, 5:22, 6:4, 7:12, 7:19, 8:7, 8:12, 8:16, 10:22, 11:1, 11:17, 11:24, 12:4, 12:6, 12:13, 12:17, 12:21, 14:6, 14:10, 14:13, 15:11, 15:17, 19:6, 19:22, 20:15, 23:24, 24:6, 24:22, 26:17, 28:24, 29:2, 34:22, 38:15, 40:21, 41:10, 42:3, 42:16, 43:3, 43:11, 43:17, 44:24, 44:24, 45:2, 45:10, 45:22, 46:22, 48:22, 53:17, 53:21, 58:1, 58:2, 59:14, 60:20, 62:1, 62:15, 62:18, 69:23, 70:5, 76:4, |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| | | | | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 82:25, 83:14, 83:18, 83:20, 84:2, 84:13, 84:18, 85:11, 88:18, 88:19, 88:21, 88:22, 89:3, 89:17, 89:20, 90:4, 92:16, 99:1, 119:1 nutrients 5:16, 8:23, 13:2, 14:10, 14:16, 15:2, 15:25, 16:4, 17:25, 17:25, 18:5, 18:6, 18:10, 18:13, 18:25, 19:10, 19:15, 19:17, 19:25, 20:25, 21:14, 24:15, 24:22, 27:3, 29:9, 29:16, 32:21, 35:10, 35:16, 53:8, 54:16, 60:14, 68:15, 69:3, 70:6, 76:4, 81:2, 82:2, 94:10, 95:10 nutshell 73:4, 90:14 | 71:10, 71:11, 86:3, 87:12, 87:19, 92:19 ongoing 7:9 online 8:24 onsite 67:4, 78:21, 79:13, 79:19, 79:23, 93:2, 97:16 onto 36:15 open 92:5 operate 11:25 operated 79:12 operating 18:11 operation 57:21, 95:19 operational 60:11 operations 8:8, 72:3 operators 57:22 opinion 51:13 opportunities 52:15 opposed 4:17, 11:17, 15:11 option 43:18, 78:21, 78:22, 85:4, 88:19, 88:20 options 24:16, 40:10, 85:9, 88:9 order 2:5, 10:17, 34:12, 46:1, 81:22, 96:14 orders 102:1, 104:4 Oregon 88:13 organisms 17:8, 17:20 original 14:4, 34:10, 43:19, 88:13, 89:25 others 34:3, 86:14, 86:15, 113:17 otherwise 65:3, 104:21 ought 21:17, 28:9, 30:14 outfit 52:4 outline 11:12, 91:7 outreach 8:3 overall 8:25, 44:13, 48:1, 86:9, 96:10, | 96:14, 96:18, 96:19 overly 91:10 oversights 72:20 overview 7:3, 12:16, 41:5, 69:1, 83:14, 87:22 owner's 7:2 oxidized 64:23, 71:14 oxygen 15:5, 17:10, 17:11, 17:19, 18:22, 24:22 | <hr/> P <hr/> p.m. 119:17 P.O. 1:22 package 48:1, 48:13, 49:2, 49:6, 49:20, 68:16, 68:18, 93:20, 101:5, 111:22, 118:18, 119:2 packet 46:17 pages 91:11, 120:12 parameter 86:10 participate 85:10, 86:25 particles 81:18 particular 9:12, 21:23, 29:19, 31:9, 69:3 particularly 117:5 party 85:16, 86:12, 98:12 pass 46:12 passed 13:8, 79:2, 102:12 passive 50:13 past 37:3, 48:13, 51:22 path 89:9 pathogenic 81:14 pattern 31:22 patterned 88:10 patterns 31:1, 33:12, 37:9 Paul 50:1, 56:22, 57:4, | 73:9, 73:10, 83:6 Paul's 85:22 pay 40:12, 41:1 peer 25:11, 38:13 people's 33:7 per 16:10, 22:18, 30:11, 39:4, 39:21, 42:24, 42:25, 42:25, 44:6, 65:9, 71:13, 100:21, 101:15, 102:1, 103:1, 107:13, 108:11, 108:12, 108:20, 110:3, 110:4, 110:13, 110:21, 110:24, 112:16 percent 31:8, 34:12, 40:17, 46:21, 47:2, 47:3, 47:6, 47:6, 47:15, 96:21, 100:16, 107:21, 107:23, 108:11, 108:18, 108:18, 110:4, 110:11, 110:12, 110:17, 110:22 percentile 105:19, 109:6 perfect 36:6 performance 43:9 perhaps 27:23, 41:22, 44:5 period 14:1, 26:7, 26:16, 32:9, 41:17, 44:16, 102:11, 102:13, 102:17, 102:25, 103:3 permit 14:1, 35:2, 40:1, 64:5, 64:25, 65:1, 65:16, | 67:17, 72:19, 84:22, 94:17, 94:19, 94:23, 94:24, 94:24, 96:25, 97:1, 97:3, 98:5, 104:21, 114:3 permits 45:19, 83:12, 84:1, 84:7, 84:20, 90:12, 95:2, 95:4 permittee 42:18, 43:20, 96:2, 98:12, 98:16 permittees 7:22, 42:13 permitting 7:21, 15:13, 83:11, 88:7, 113:23 perspective 7:16, 51:20, 52:7, 52:25, 81:25 pertaining 64:11, 68:6 pertains 46:8 pesticide 99:14, 99:21, 103:16 pesticides 99:23, 100:6, 101:2, 102:6, 103:7, 103:12, 103:23, 104:6, 111:24, 112:3, 115:7, 115:11, 118:22 petroleum 108:6 pH 15:5, 21:1, 24:22, 26:14, 31:24, 31:25 phosphorus 6:2, 14:25, 22:18, 22:25, 29:24, 30:6, 30:11, 32:7, 32:16, 33:1, 33:3, 33:10, 33:11, 33:13, 34:8, 34:13, 35:9, 35:14, 39:13, 44:9, 55:18, 79:9, 83:19, 85:1, 85:6, 87:14, | 87:21 photos 15:24 phrase 41:4 physical 61:6 phytoplankton 27:14 pie 9:22, 92:25 piece 6:5, 7:4, 8:11, 11:2, 21:15, 24:9, 44:20, 78:12, 85:11, 92:25, 93:16 pieces 5:7, 5:23, 10:10, 11:9, 12:8, 21:20, 22:21, 49:11 pine 32:15 pipe 54:3, 65:11, 67:15 places 13:14 plains 20:10 plaintiffs 7:8 plan 10:6, 69:13, 86:2, 86:8, 89:13, 118:19 planned 28:2, 38:8 planning 4:24, 10:5, 25:20, 27:22, 83:2, 103:16, 117:22, 117:24 plant 15:22, 34:20, 34:22, 39:15, 55:22, 62:4, 62:5, 62:9, 62:9, 62:10, 97:20 plants 9:23, 27:12, 54:22, 62:1, 81:1 play 9:6, 38:17 please 66:20, 92:1 plus 89:5 point 2:16, 9:13, 10:4, 10:12, 12:9, 13:16, 17:9, 18:2, 25:2, 25:5, 25:23, 25:23, 29:1, 33:21, 33:23, 33:24, 34:14, 34:17, 35:21, 36:2, 36:7, 38:4, 38:9, |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 38:25, 40:13, 49:3, 49:13, 50:3, 50:19, 54:17, 56:24, 82:4, 84:19, 85:10, 86:5, 86:22, 87:13, 87:17, 87:17, 89:5, 92:10, 92:14, 92:14, 92:21, 92:23, 93:17, 93:23, 94:1, 94:2, 94:2, 94:16, 94:16, 95:14, 96:1, 96:15, 99:20, 106:16, 111:8 pointing 33:23 points 5:18, 55:1 policies 89:22 policy 6:17, 80:18, 83:15, 84:5, 84:11, 84:24, 85:6, 88:8, 88:10, 88:25, 89:4, 90:2, 90:8, 90:12, 90:13, 90:15, 90:18, 91:6, 91:17, 91:24, 92:3, 93:25, 95:6, 98:3, 98:5, 119:1 pollutant 107:9, 107:11, 107:12, 107:13 pollutants 84:25, 105:10, 105:15, 106:25, 107:19, 108:22, 113:15, 115:7, 115:11, 115:17 pollution 1:3, 57:5, 57:11, 76:19, 116:22, 117:5 ponds 35:11 pool 92:17 poor 53:17 population 31:8, 31:17, 32:14 populations 27:13 portion 54:23 possibilities 9:20 possible 86:5 possibly 8:16, 18:16, 32:10, 35:4, 37:14, 54:4, 93:1 post 69:16, 112:11 potable 72:16 potential 103:25, 116:23 potentially 64:18, 65:2, 74:5, 93:12, 96:15 pounding 79:21 pounds 8:23, 100:11 Powder 37:7, 37:8 Power 56:24 practical 39:9, 109:13 practice 93:10 practices 87:2 prairies 36:15 preceding 12:24 preclude 115:12 predict 77:5 prepare 40:24 PREPARED 1:20 prescribing 112:19 present 82:23, 103:6, 107:24 presentation 23:8, 40:25, 56:24 presentations 52:20, 90:7, 99:2 presented 73:6 presenting 4:21 pressure 15:9 presumably 94:11 presuming | 28:1 prevent 13:1 Prevention 4:25 previous 37:19, 75:10, 76:20 previously 99:18, 101:2 primarily 37:6, 46:4, 58:12 prior 41:25, 45:16, 98:3 private 75:14, 85:19 PRL 109:20 PRL's 110:23 probable 100:17 probably 5:3, 8:17, 12:17, 22:11, 27:7, 28:22, 30:13, 35:17, 37:14, 37:19, 38:5, 38:6, 41:3, 48:23, 56:5, 56:7, 62:13, 64:17, 68:9, 76:1, 81:7, 87:20, 111:11, 117:8, 117:14, 117:19, 119:3 problem 54:6, 55:18 problems 13:2, 15:23, 15:24, 17:11, 17:16, 17:19, 18:22, 22:10, 26:14, 27:8, 27:15, 27:17, 29:10, 42:12, 45:8, 60:8 procedures 45:18 proceedings 1:6, 2:1, 119:16, 120:8, 120:10, 120:13 process 7:14, 7:18, 7:23, 11:19, 14:6, 34:20, 35:7, 35:12, 35:16, 52:8, 54:15, 100:2 processes | 25:4, 59:12, 74:17, 82:3 producers 8:7 product 100:18 products 35:11, 101:20 profound 104:8 program 8:4, 9:8, 9:9, 12:21, 12:23, 57:6, 57:11, 57:13, 57:14, 57:16, 57:16, 57:18, 76:24, 79:22, 80:20, 83:5, 83:9, 86:5, 86:14, 87:3, 88:3, 88:15, 91:6, 91:9, 91:16, 91:18, 91:21, 93:15, 94:9, 94:17, 114:13 programs 7:21, 50:9, 83:8, 84:10, 84:16, 84:18, 85:12, 85:15, 86:12, 87:10, 87:11, 87:23, 88:1, 88:12 progress 71:3 progression 109:5 prohibitions 70:15 project 52:1, 93:13, 98:14, 98:20 projecting 12:12 projects 9:10, 84:1, 87:4 promoting 52:13 properly 79:11, 79:12, 79:12, 79:13, 79:15, 79:17, 79:25 property 7:1, 7:2, 9:15, 27:6, 73:19 proposal 70:19 propose 82:20 proposed 69:22, 70:7, 70:23 Pros 86:4 | protect 16:14, 19:4, 81:14 protected 16:17 protecting 18:25 protection 81:9, 83:7 protections 80:25 protective 81:25 protects 70:20 prove 74:18 provide 8:6, 61:6, 95:12, 95:22, 96:1, 97:3, 114:1 provided 10:9, 14:4, 73:19, 93:6, 105:19, 114:23 provides 89:18 providing 5:5, 26:5, 117:9, 117:10 pseudo-tmdl 61:24 public 1:21, 7:18, 16:19, 49:4, 52:18, 52:20, 52:25, 57:23, 57:23, 64:12, 65:18, 65:22, 65:23, 66:1, 66:8, 66:12, 66:14, 66:24, 67:1, 67:2, 67:3, 67:8, 67:22, 67:22, 68:3, 68:8, 70:8, 73:23, 75:13, 76:12, 77:11, 78:10, 78:11, 79:8, 81:25, 82:7, 90:24, 91:13, 112:9, 116:7, 116:9, 118:4, 118:6, 120:6, 120:20 pull 55:4, 56:23 pulled 63:7 pumped 79:25, 80:6 purchase 54:10 purple 54:3 | purpose 10:12, 44:21 purposes 54:11 push 52:17 putting 28:19, 48:1, 61:12, 90:23 puzzle 11:2, 44:19 <hr/> Q <hr/> QUAL2K 25:18 qualifier 5:1 quality 5:9, 15:3, 19:19, 24:17, 31:12, 38:6, 41:21, 41:25, 46:20, 46:24, 47:1, 47:11, 48:16, 50:23, 51:1, 64:1, 64:4, 64:11, 64:13, 65:14, 68:7, 77:1, 77:5, 77:18, 84:4, 87:6, 90:17, 93:7, 95:5, 95:24, 97:21, 104:11, 107:25, 111:17, 116:19, 117:16, 118:11 quantify 16:9 quantity 77:1, 78:1 question/answers 89:24 quick 5:25, 23:12, 82:20, 115:3, 118:23 quickly 99:4, 116:11 quite 20:21, 29:9, 29:12, 35:21, 45:6, 51:19, 56:10, 56:12, 60:7, 62:3, 80:21 quorum 2:6 <hr/> R <hr/> rain 31:1 ran 24:5 range 17:14, 18:11, 22:3, 22:20, 39:20 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| | | | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| rasberries 101:11 rate 53:15, 80:22 rates 60:1, 60:3, 71:23 rather 53:14, 66:24 ratio 94:22, 95:13, 95:17, 96:1, 97:22, 97:23 ratios 86:8, 90:5, 95:7, 95:22, 97:23 Raw 32:20 reach 36:23, 37:7, 37:11 reaches 26:23, 31:7, 37:5, 37:13, 37:15 reactivated 35:2 reactors 60:19 readily 40:5, 51:6 reading 99:9 ready 23:22, 89:15, 100:25, 101:16, 102:4 real 8:19, 98:4, 115:3 reality 34:1 really 2:12, 5:10, 10:11, 10:12, 13:20, 28:15, 31:19, 33:7, 35:13, 38:4, 44:2, 47:19, 47:21, 48:7, 50:13, 54:12, 56:6, 60:8, 62:14, 62:15, 67:15, 68:20, 73:7, 73:13, 75:15, 75:21, 79:14, 81:10, 86:5, 100:15, 101:12, 105:7, 113:6, 113:13, 113:22, 114:13, 114:16, 115:7, 117:3 realtors 76:16 reason 28:14, 55:1, 81:11, | 82:15 reasons 113:3, 113:4 receive 40:10, 42:21, 43:1 received 99:22 receiving 95:20 recent 31:5, 33:13 Recess 82:22 recharge 72:15 reclaimed 62:24, 64:14, 64:16, 70:22, 71:20, 72:12 recognize 48:5 recognizing 9:1, 37:23 recommendation 88:22, 117:3 recommendations 28:3 recommended 23:11, 102:22 reconcile 103:22 reconciled 103:24 record 74:20, 117:21, 120:13 recreational 16:16, 27:5 redo 77:1 redoing 105:13 reduce 5:15, 8:24, 29:2, 86:8, 86:9, 87:4, 93:12, 96:17, 96:23, 97:25, 98:17 reduced 18:5, 66:17, 107:4 reducing 96:19 reduction 5:17, 12:21, 28:24, 29:16, 40:5 reductions 8:12, 27:5, 29:8, 35:6, 94:10, 94:14 refer 23:20 reference 19:20, 21:7, 21:7, 21:10, | 21:22, 22:3, 22:13, 22:19, 23:13, 24:7, 64:19, 90:15, 90:16 referring 66:7 refers 64:15, 90:17 refined 14:5, 35:12 reflect 31:25 regarding 117:16 regimes 24:13 region 101:16, 102:4, 102:20 regional 20:22, 22:19, 92:14 regression 35:25, 36:1 regulate 69:2 regulation 48:10, 50:21, 51:13 regulations 11:18, 89:23 regulatory 87:9 related 13:2, 33:5, 49:19, 57:23, 62:25, 64:4, 69:23, 83:12 relating 37:17, 42:13 relation 19:17 relationship 19:15, 20:20, 33:2 relationships 20:25 relative 45:8, 53:19, 99:21 relatively 32:9, 47:20 release 108:6 relevance 12:14 relief 40:11 remaining 25:1, 25:21 Remediation 114:5 removal 34:23, 40:18, 59:14, 60:20, 62:1, 62:15, 62:18, 81:22, 92:16 rephrase 76:7 | replaced 27:13 replaces 60:25 report 23:6, 25:12, 105:4, 106:3, 107:5, 107:6, 110:16 reported 104:24, 108:13, 108:14, 110:6, 110:9, 110:19, 115:16, 120:10 Reporter 1:21, 120:5, 120:20 reporting 70:12, 73:3, 99:16, 102:19, 104:17, 104:19, 109:12, 109:13, 109:17 represent 21:13, 22:1 representative 52:19 represents 22:2, 39:7 request 69:19 requested 112:10 require 72:18 required 62:25, 67:17, 99:16, 102:19, 104:17, 107:2, 107:5, 107:6 requirement 6:15, 51:10, 97:9 requirements 60:11, 70:12, 70:12, 72:23, 73:3, 76:3, 76:18, 96:5 requires 63:13 research 62:16, 84:11, 88:8 reservoir 27:22, 28:3, 28:11 residential 100:17, | 100:18 residual 48:25 resolved 45:8, 55:17 resource 97:18 Resources 77:24 respect 82:2 response 2:19, 3:24, 4:16, 4:18, 22:6, 22:9, 22:16, 56:20, 89:24, 116:2, 119:7, 119:15 responsible 58:12, 98:12 rest 59:24 restoration 85:22 restrictive 103:10, 107:20, 108:10, 108:24 restructure 37:22 result 96:24, 115:4 retrospect 56:25 return 82:5 reuse 6:10, 6:11, 58:8, 58:14, 59:15, 59:19, 59:25, 60:2, 62:19, 62:21, 62:23, 63:1, 63:5, 63:13, 63:14, 63:16, 64:9, 65:4, 65:7, 66:1, 70:4, 70:4, 70:10, 70:25, 71:10, 72:16, 73:4, 73:13, 73:21, 75:21, 75:23, 81:9, 93:21 review 10:6, 25:11, 48:15, 63:20, 76:24, 76:24, 91:9, 105:22, 112:10 reviewed 38:13 reviewing 61:16 reviews 71:24, 77:2 | revised 59:8 revising 111:8 revision 59:9, 59:9 revisit 50:23, 51:3 revisited 99:3 revisiting 104:13, 105:21 revolved 53:22 revolving 57:5, 83:6 rich 53:8 rights 53:13, 53:19, 54:9, 62:25, 63:11, 63:15, 63:21, 70:15 riparian 85:23 risk 82:8, 107:4 river 11:23, 12:20, 13:1, 13:5, 13:6, 18:3, 18:6, 25:8, 25:14, 25:17, 25:21, 25:24, 26:23, 28:13, 29:1, 29:3, 29:6, 29:8, 30:9, 30:15, 30:25, 31:7, 31:13, 32:5, 33:13, 34:1, 34:7, 34:9, 34:11, 34:13, 36:4, 36:18, 36:23, 36:25, 37:8, 37:8, 38:7, 53:23, 54:6, 54:11, 56:6, 56:15, 61:13, 70:6, 87:16, 87:21 rivers 15:23, 16:5, 17:6, 24:4, 24:6, 25:1, 25:19, 34:18, 36:13 road 12:9, 56:8, 78:18 Rock 61:13 Rockies 20:14, 20:16, 21:23 Rocky 20:12 Rod 99:5, 99:6, 99:7, |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| | | | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 111:25, 114:22 Rod's 104:25 role 117:17 roles 41:1 room 1:8, 34:24, 107:24 root 15:10 rose 31:18 routinely 7:19 routing 54:2, 54:17 RPR 1:20, 120:5, 120:19 RRV 104:17, 107:11, 107:16, 107:21, 107:22, 108:8, 108:21, 109:15, 110:13, 110:24, 113:12, 113:13, 113:22, 114:1 RRV's 104:12, 105:3, 105:8, 105:18, 105:22, 105:24, 106:11, 106:14, 107:10, 107:13, 107:18, 107:20, 108:15, 108:23, 109:2, 110:6, 111:18, 111:20, 111:23, 112:3, 112:13, 112:21, 114:5, 114:15 rule 12:8, 46:17, 47:20, 48:13, 66:5, 68:17, 70:20, 90:15, 90:16, 91:17, 105:7, 107:17, 107:17, 108:4, 110:14, 110:17, 111:4, 119:2 rulemaking 10:11, 11:4, | 11:5, 69:19 rules 12:8, 13:8, 45:20, 46:5, 46:9, 46:18, 49:20, 59:20, 62:23, 64:2, 64:3, 64:4, 64:11, 64:14, 66:2, 68:6, 70:8, 89:22, 105:2, 111:8 run 7:24, 30:21, 32:23, 86:14 running 78:25, 91:18, 98:23, 105:15 <hr/> S <hr/> SALLEY 1:14, 2:22, 4:11, 34:19, 92:6, 94:5, 119:13 salmonid 17:22, 18:1, 18:15, 18:19 sampling 60:11, 70:11, 113:21 sanitary 72:5 save 86:5 saying 46:3, 47:25, 64:22, 75:11 says 70:9, 94:9 SBR's 60:21 scale 10:2, 98:4 scenes 57:25 science 50:25 scientific 18:14 scope 117:4 scratch 111:21 screening 81:18 scuds 17:7 se 112:16 seal 120:16 seasonal 26:9, 53:5, 53:14 secondaries 40:16, 40:16 secondary 34:22 section 37:5, 45:1, 74:15, 80:3, 80:12, | 104:11 sections 36:16 sectors 51:17 sediment 85:2 seeing 26:2, 29:17, 55:7, 56:13, 77:10, 77:15, 117:19 seems 50:13, 56:15 segment 84:24 SELCH 1:14, 2:4, 2:20, 2:24, 3:9, 3:15, 3:21, 3:25, 4:4, 4:12, 4:15, 4:17, 4:19, 10:17, 44:8, 53:3, 54:21, 56:18, 56:21, 68:10, 73:9, 82:19, 82:24, 98:22, 103:8, 103:12, 111:3, 112:5, 115:19, 116:3, 116:6, 118:13, 118:17, 119:5, 119:8 seller 84:15 Senate 5:25, 6:4, 7:5, 7:10, 7:11, 7:13, 12:6, 13:22, 14:4, 41:6, 42:1, 42:4, 42:8, 42:15, 43:19, 45:12, 47:23, 65:25 send 106:22, 117:11 sending 117:23 sense 22:22, 24:11, 44:16, 60:16 sensitive 106:6, 106:6, 106:9, 108:10, 108:19 sent 47:25, 117:8 separate 46:17, 59:24 September 49:2 | septic 6:20, 8:9, 8:10, 8:12, 75:10, 75:18, 76:13, 76:20, 78:16, 79:10, 79:13, 79:19, 79:24, 80:5, 85:12, 93:2, 95:8, 97:9, 97:10, 97:11 septics 37:22, 37:22, 77:6, 77:9, 77:18 sequencing 60:19 series 10:7 serve 10:11 served 5:14 serving 78:10 session 6:1, 6:9, 79:1, 116:16 set-up 76:11 sets 3:1, 19:7 setting 117:25 settle 18:7 settled 24:16 seven 99:10, 102:8, 102:13 several 5:21, 5:23, 13:10, 40:7, 111:12, 113:2 sewage 65:18, 65:20, 65:22, 66:2, 66:8, 66:14, 66:24, 73:22 sewers 72:5 shallow 24:14, 26:12, 37:24 shape 112:4 sharp 29:15, 30:5 shift 17:3, 18:18, 26:24, 27:11 shifts 37:1 short-sighted 66:16 shortage 115:4 shorthand 120:10 shot 65:16 shouldn't 63:11 showed 38:21 showing 5:6, | 22:9, 23:9, 53:1 shown 32:19 shows 16:11, 21:19, 31:10, 44:1, 87:22 significance 34:16 significant 38:1, 47:8, 92:17, 92:24, 105:23, 113:7, 113:10, 113:11, 113:18 significantly 34:24, 35:12 silver 54:16, 54:18, 99:15, 102:8, 102:8, 102:15, 102:21, 103:7, 118:22 similar 26:1, 89:8, 96:12, 109:14 simple 90:16, 96:13 simply 47:20 simulate 24:19 simultaneously 56:15 single 29:21, 32:25, 103:4 site 22:13, 29:19, 29:20, 45:22, 60:16, 72:24, 76:5, 89:19 sites 19:20, 21:9, 21:22, 22:3, 22:19, 23:13, 24:8, 67:3, 108:6 situation 55:5, 55:20 situations 113:21, 114:10 six 100:12, 101:19, 102:13 sixes 77:16 Sixth 1:9 size 61:2 skated 63:4 sky 9:22 slide 21:19, 36:19 slightly 20:15 slow 18:6 | smaller 43:5, 56:7, 81:18 smallest 109:8 snow 72:17 soil 72:6 solicitation 89:25 solicited 89:10 solid 112:4 solids 61:9 solution 93:16, 93:16 solutions 53:2, 55:9 solves 54:6 somebody 47:2, 80:10, 113:21 somebody's 53:24, 54:8 someday 9:23 somehow 63:9 someone 49:22, 86:7 sometime 11:5, 117:20 somewhat 44:4 somewhere 17:17, 39:10 sophisticated 39:16 Sorry 44:11, 69:10 sort 7:6, 9:21, 11:5, 38:1, 38:14, 39:7, 53:13, 59:21, 67:4, 70:15, 76:3, 100:2, 116:23, 117:2 sorted 107:9 sounds 4:7, 67:21 source 8:2, 8:11, 27:15, 33:23, 33:25, 37:18, 38:2, 38:25, 44:19, 55:13, 83:7, 84:19, 85:14, 86:1, 86:22, 87:2, 87:13, 87:17, 87:17, 87:18, 89:6, 89:6, 92:10, 92:14, 92:14, 93:11, 93:19, 93:24, 93:24, |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| | | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 94:1, 94:2, 94:2, 94:2, 94:3, 94:3, 94:16, 94:16, 95:14, 96:2, 96:16, 97:11, 100:17 sources 29:1, 33:21, 33:22, 33:25, 34:14, 34:17, 85:11, 85:12, 86:6, 86:18, 86:24, 87:4, 87:14, 92:21, 92:22, 92:24, 92:24, 93:17, 109:25 speak 10:20, 118:3 speaker 55:24, 56:22, 61:4, 82:24, 99:5 speaking 117:15 species 27:10 specific 40:21, 43:24, 69:6, 91:10, 117:25 specifically 45:2, 59:19 specified 104:21 specifies 84:24 speed 25:4 spend 102:7 spite 31:7 split 113:2 splits 29:6 splitting 99:11 spoke 10:23 spoken 99:17 sporadically 21:11 spray 63:6, 71:21, 71:23 spraying 72:25 spread 63:2 spreadsheet 112:6, 112:8 spring 28:2, 49:6, 49:11, 89:4, 90:25, 91:3 square 16:10, 78:6 SRF 83:5 SS 120:3 staff 3:8, | 117:9 stage 43:9 staged 6:8 stages 83:17 stakeholder 7:18 stakeholders 45:1 standard 14:20, 26:19, 30:14, 30:15, 34:21, 41:18, 41:20, 41:20, 46:25, 47:2, 47:6, 47:7, 47:12, 53:14, 53:16, 53:19, 56:14, 59:13, 64:22, 99:15, 100:21, 101:14, 101:14, 101:25, 102:18, 102:22, 102:24, 103:9, 104:4, 104:5, 107:21, 107:22, 107:24, 108:2, 108:9, 108:10, 108:17, 108:24, 109:9, 109:10, 109:22, 110:2, 110:2, 110:7, 110:8, 110:21, 115:14 standards 5:9, 5:10, 5:12, 5:22, 6:5, 6:7, 10:22, 11:24, 12:4, 12:17, 13:6, 13:7, 13:25, 14:11, 14:16, 14:22, 14:24, 15:3, 15:11, 15:12, 15:14, 15:18, 19:7, 20:15, 20:18, 24:6, 26:17, 28:25, 29:12, 29:18, 30:3, 31:11, 38:15, 38:22, 40:11, 40:21, 41:14, 41:21, 41:25, 42:3, | 43:3, 45:2, 46:22, 47:16, 47:18, 48:3, 50:24, 51:1, 53:5, 53:20, 56:17, 58:4, 58:5, 58:15, 58:17, 58:25, 59:3, 59:4, 59:12, 59:15, 59:19, 60:5, 61:15, 62:14, 62:17, 62:21, 62:24, 65:14, 70:10, 71:1, 72:10, 73:1, 74:12, 79:7, 79:7, 79:8, 83:18, 83:20, 84:13, 99:14, 99:25, 100:1, 103:15, 103:15, 103:17, 103:24, 104:2, 104:11, 112:15, 113:8, 113:9, 115:8, 115:9 stare 80:11 stars 21:1 start 35:17, 78:12, 111:20 started 42:11, 45:9, 59:7, 61:21, 61:22 starting 60:23 starts 18:16 state 5:16, 6:8, 9:8, 13:5, 14:11, 15:19, 17:15, 19:11, 19:22, 21:15, 23:10, 25:17, 47:16, 57:5, 57:15, 58:25, 61:21, 62:14, 76:25, 77:10, 83:6, 83:20, 85:17, 86:11, 86:12, 87:24, 87:25, 88:2, 88:11, 88:12, 98:15, 99:25, 108:7, 117:1, 120:2, 120:7 State's 12:11 stated 72:19 statement 75:11 | states 59:1, 65:6, 65:7, 83:21, 87:12, 87:23, 87:25, 89:22, 90:3, 90:4, 92:13, 100:10, 100:15 statewide 10:2 station 30:7 statistical 30:21 statistics 23:12, 32:23, 33:9, 108:1 statute 50:21, 65:24, 66:4, 66:7 statutorily 42:20 stay 79:4 stays 96:4, 96:5, 96:8 steady 30:18 Steinmetz 99:12, 104:10, 104:10, 111:7, 112:8, 112:24, 114:4, 114:19, 114:21, 114:25, 115:6 step 43:2, 43:11, 48:20, 51:9, 62:11, 81:12, 82:2, 105:8, 112:1 steps 81:20, 81:24 Steve 76:1, 76:5, 80:19 STEVE 1:15 stick 66:6 sticky 12:3 stimulus 9:10 Stockwell 117:9 Stoltz 9:14, 9:17 stone 16:25, 34:15, 35:2 stopped 48:16 strategies 54:14 strategy 4:20, 5:17, 28:24, 69:24, 82:25, 99:1 strawberries | 101:10 stream 9:25, 16:7, 19:2, 23:16, 39:3, 40:3, 63:8, 72:16, 76:14, 82:5, 84:24 streams 15:23, 16:5, 16:17, 17:6, 17:11, 19:21, 21:7, 21:8, 21:10, 24:4, 24:14, 47:11, 47:13, 47:15, 85:4 street 72:5 stretch 25:16 stringent 13:19, 38:22, 43:4, 44:4, 51:8, 110:1 strong 8:3 struggling 55:14 studied 34:2 studies 11:24, 17:15, 19:18, 20:22, 21:4, 21:6, 22:6, 22:17, 30:13, 34:10, 105:14 stuff 10:3, 16:3, 19:7, 52:14, 52:16, 57:17, 57:25, 58:2, 59:6, 61:9, 64:5, 65:5, 67:4, 67:16, 68:22 stunned 33:20 subdivision 73:22, 73:25, 74:2, 75:8, 76:12, 76:16, 76:17, 77:6, 77:7, 77:23, 78:2, 79:5, 79:6, 80:19 subdivisions 6:22, 73:20, 75:8, 76:10, 76:24, 77:13, 77:16, 78:4 subdivison 76:23 subgroup 88:17, 88:23, 89:20 subject 63:15, 74:3 | submit 106:23 submitted 107:2 subsequent 30:13, 42:6 substantial 56:2, 59:10 substantive 118:21, 119:3 success 48:12 successful 29:5 suggested 102:10 suggestions 74:10 suitable 18:21 sulphate 110:20 summer 25:20, 26:11, 27:9, 29:21, 31:4, 31:22, 43:1, 49:11, 54:2, 54:7, 91:3 summertime 32:3 superior 47:12 Suplee 4:20, 10:19, 31:19, 32:2, 32:17, 32:22, 33:24, 34:21, 35:4, 35:24, 36:17, 36:22, 38:3, 41:3, 44:11, 46:8, 46:15, 49:10, 49:25, 50:7, 50:11, 50:19, 52:23, 53:18, 54:25, 55:10, 55:12, 55:25 supplied 27:16 supplies 67:22, 70:21, 99:24 supply 64:12, 68:4, 68:8, 70:8, 78:2, 82:7, 101:13 support 17:12, 21:5 supported 5:20, 5:24, 6:18, 84:4 supporting |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| | | | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 84:5 supposed 19:4, 40:19, 41:19, 55:22, 66:13 supposedly 103:21 suppression 6:13 surface 58:21, 60:10, 81:21, 83:19, 86:9, 95:10, 104:19, 108:7, 108:9, 110:2, 112:22, 113:8, 113:13, 114:8 surge 61:8 surprised 101:22 survival 18:1 susceptible 81:19 synchronized 51:2 synonymous 109:14 system 8:21, 8:22, 13:13, 19:24, 20:18, 31:13, 36:5, 37:24, 54:3, 63:10, 67:2, 67:13, 67:18, 67:19, 75:13, 75:14, 76:20, 79:13, 79:19, 80:5, 92:10 systems 20:3, 32:5, 34:2, 36:4, 58:21, 58:22, 58:23, 63:4, 65:22, 66:2, 66:8, 66:14, 67:5, 67:23, 76:13, 77:12, 78:16, 78:23, 78:24, 79:10, 79:23, 83:10, 85:13, 85:24, 93:2, 93:2, 93:5 | tackle 25:20, 27:22 taken 60:14, 60:16, 82:22, 83:23, 120:8 takes 4:13, 43:13, 100:2, 112:18 taking 26:4, 27:24, 28:19, 37:6, 46:5, 47:24, 54:15, 91:23, 97:19, 109:6, 109:7, 111:18 talks 46:10 tank 75:18 tanks 75:10, 79:24, 95:8 target 26:16 targeting 49:1 targets 12:22, 13:1, 13:5 taste 27:14 tax 73:19 technical 13:11, 23:19, 25:11, 48:6, 57:19, 57:22, 83:3, 83:5 technological 73:15 technologically 43:7 technologies 43:14, 50:17, 51:3, 51:15, 60:18 technology 9:24, 39:6, 39:8, 39:9, 39:22, 40:12, 44:17, 49:23, 50:6, 50:13, 50:16, 51:6, 53:10, 55:2, 60:21, 74:8, 74:13, 83:22 Teegarden 82:25, 83:1, 83:2, 87:8, 90:22, 92:9, 94:21, 97:16, 98:11, 98:21 teeth 79:21 telephone 1:18 temperature 85:2, 85:8 temporary 40:10, 55:20 | ten 5:10, 13:7, 38:8, 42:25, 58:25, 59:1, 60:22, 62:14, 65:14, 82:20, 88:5 tend 17:6, 29:8, 32:4, 32:6 tended 33:14, 53:20, 56:11 tendency 21:25 tends 38:17 terminology 68:1 terms 11:14, 15:19, 17:21, 19:22, 19:24, 24:21, 27:19, 30:2, 34:17, 65:4, 70:6, 70:11, 89:22, 104:1, 116:25 Terry 58:13, 62:19, 81:3, 82:18 tested 115:17 testing 115:23 thank 3:7, 10:16, 37:16, 44:12, 73:9, 73:16, 74:9, 74:10 thankfully 2:9 Thanks 2:10, 41:4, 98:22, 116:6, 118:9, 118:13 theory 22:8 there'll 97:7 there's 9:19, 31:16, 32:5, 38:11, 59:1, 63:3, 95:8, 97:22 therefore 83:21, 87:8 thereof 18:23 they'd 35:17, 69:20, 75:13 they'll 21:25, 22:20, 27:14, 97:5 they're 8:24, 9:15, 9:16, 9:17, 14:16, 14:17, 16:19, 17:4, 18:4, 18:11, 22:11, 24:12, 24:18, 26:25, 27:19, | 28:4, 29:11, 30:11, 31:6, 33:5, 36:9, 36:11, 41:7, 41:16, 42:21, 45:24, 45:25, 47:18, 48:19, 49:13, 49:13, 49:14, 52:23, 55:14, 55:16, 56:10, 58:22, 60:6, 60:14, 61:2, 61:14, 66:13, 71:1, 71:6, 75:5, 77:19, 77:19, 78:14, 78:20, 82:10, 87:13, 96:17, 96:19, 97:6, 97:13, 108:18, 109:14, 109:15, 112:14, 112:15, 115:22, 117:24 they've 3:11, 11:25, 18:9, 28:6, 56:11, 56:12, 62:3, 63:4, 92:13, 97:10 thing 5:13, 8:13, 12:18, 37:20, 50:19, 59:21, 60:4, 66:4, 70:15, 70:18, 71:7, 72:4, 76:3, 79:14, 81:7, 91:11, 113:20 thinking 63:12, 63:24, 75:22, 75:23, 78:10, 78:12, 98:8 thinks 38:6, 49:24, 50:4 third 3:12, 80:13, 80:13, 80:13, 85:16, 86:11 though 28:10, 82:14 throughout 7:22 throw 82:11 thus 7:1, 89:16 tick 101:23 ticket 56:16 tie 21:19 | tied 5:7, 7:6, 86:13 ties 16:3, 70:4, 70:5 tight 112:2 tighten 111:23 tillage 85:25 timeline 11:14, 12:13, 14:9, 90:22 timing 68:21 tip 35:22, 35:23 TMDL 7:6, 15:14, 84:8, 96:10 TMDL's 7:6, 83:12, 83:25 TN 42:25 today 2:11, 4:13, 5:4, 10:4, 10:13, 11:3, 11:13, 12:10, 72:20, 99:5, 99:13 Todd 45:11, 45:13, 82:25, 83:2, 98:22, 118:25 toilet 72:7 tolerant 17:8 tomorrow 39:25 tool 58:17, 84:12 top 16:15, 39:4, 51:22 topic 18:14 topics 45:6, 99:17 total 22:18, 29:24, 29:25, 30:6, 30:11, 30:19, 31:17, 32:7, 32:20, 32:25, 32:25, 33:3, 33:4, 39:12, 39:18, 39:19, 44:10, 71:12, 92:20, 93:18 touch 5:18, 11:22, 12:7, 59:16 touched 49:21, 59:22 tour 50:1 towards 41:19, 43:2, 43:11, 51:9, 82:17, 89:19 Towns 7:21, | 89:12 toxicology 103:19 toxin 100:20, 101:13 TP 39:4, 42:24, 44:6 trade 85:24, 86:4, 86:16, 93:5, 97:2, 97:2, 97:4, 97:7 traded 84:25 trades 84:20, 84:23, 85:4, 86:2, 90:12, 91:17 trading 8:17, 45:11, 45:13, 83:14, 84:2, 84:5, 84:10, 84:14, 84:18, 85:5, 85:10, 85:12, 86:4, 86:8, 88:19, 88:21, 89:3, 89:20, 90:5, 91:4, 91:6, 91:9, 91:15, 92:15, 93:15, 93:21, 94:13, 94:17, 94:19, 95:25, 98:3, 98:5, 119:1 traditionally 85:14 transactions 98:15 transcribed 120:11 TRANSCRIPT 1:6 transcription 120:11 transitional 20:11 treat 42:19, 42:24, 49:24, 64:22, 65:11, 95:15 treated 66:18, 70:16, 71:17, 82:9 treating 81:20, 82:4 treatment 6:15, 9:23, 34:6, 34:20, 34:22, 40:12, 40:15, 41:2, 54:22, 57:16, 57:24, 58:4, 58:19, 70:11, |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

T

table 23:13,
26:1, 71:19,
80:25
tables 71:5
tablespoons
100:14

| | | | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 72:11, 73:15, 75:24, 76:2, 77:2, 78:22, 93:20, 95:16, 97:20, 100:18 trend 61:22 trends 11:22, 29:24, 30:23, 36:6 TREVOR 1:14 Tri-State 38:5 tried 70:3 trout 37:2 true 120:13 truly 94:14 TSS 40:17 tune 35:15 turbidity 37:9 turf 101:20 turn 19:3, 27:9, 28:20 tweak 59:4 tweaking 72:22 tweaks 59:11 type 14:3, 17:22, 24:5, 58:23, 85:19, 98:14 types 11:18, 15:22, 16:12, 16:24, 17:4, 17:7, 18:20, 26:17, 41:22, 42:13, 43:11, 73:15, 82:17 typical 22:2, 22:12, 33:2, 39:2 typically 16:23, 17:9, 17:23, 22:16, 22:20, 67:11, 84:14, 97:23, 100:1 <hr/> U <hr/> ultimately 19:7, 41:20, 43:3, 43:16 umbrella 10:10 uncertainty 95:7, 95:21, 97:22 understand 20:24, 21:16, 25:3 understanding 19:14, 20:20, 21:13, 55:21, | 63:20, 78:15 understood 36:5, 68:9 unimpacted 19:21, 21:14 unimportant 33:25 unique 43:24 United 12:11, 87:12, 100:10, 100:15 units 105:25, 105:25, 107:5 unknown 55:24, 61:4, 78:15 unless 43:7, 104:21 unlike 44:25 unlined 72:14 unmistakable 36:6 unrestricted 64:16, 65:6, 71:10 unwilling 86:25 up-gradient 77:4 up-tic 55:18 update 99:1 updated 89:14, 106:19 upgrade 29:14, 38:8, 62:7, 92:16, 92:18 upgraded 62:4, 62:5 upon 76:14, 95:17, 97:2 upper 20:17, 55:6, 55:7, 56:6 upset 61:7 upstream 25:22, 29:7, 30:15, 37:12 uptake 71:25 urinal 72:7 users 77:7, 77:21 uses 16:13, 19:4, 19:16, 71:20, 72:8, 101:22, 114:5 using 9:16, 20:24, 25:18, 70:16, 70:17, 81:21, 101:12, 105:24, | 109:17, 120:11 usually 16:9, 17:3, 17:25, 18:1, 21:21, 24:9, 41:17, 45:5, 84:23, 86:21 <hr/> V <hr/> validated 24:19 Valley 61:14, 80:4 value 27:5, 27:6, 33:2, 55:3, 104:17 values 99:16, 102:19, 112:16 variance 6:6, 7:14, 41:11, 41:12, 42:21, 43:2, 43:20, 43:23, 44:3, 51:4, 51:8 variances 13:24, 14:8, 40:14, 41:9, 41:10, 41:11, 41:15, 41:21, 41:22, 41:25, 42:10, 42:17, 45:18, 45:19, 46:10, 48:3, 48:8 varies 43:4 varieties 84:18 variety 6:23, 51:17 various 19:3, 24:16, 68:17, 69:8, 118:1 vary 15:20, 19:10, 67:9, 67:10 vascular 27:12 vast 47:13 verified 100:24, 102:4 verifying 100:24 version 45:24, 58:7, 71:19, 91:1, 102:12, 113:1 versus 93:16, 113:14 via 3:19, 15:10, 84:20, | 91:17 viable 78:21, 78:22, 88:20 view 5:14, 25:23, 63:17 views 12:11 violate 94:24 virus 81:22 viruses 81:15, 81:19 visited 49:25 VNRP 54:14 volume 42:22 voluntary 12:21, 12:23, 28:24 vote 4:14 <hr/> W <hr/> wadeable 24:3, 24:14 wait 52:16 waiting 55:2 waits 84:21 wanted 3:4, 3:7, 5:18, 10:13, 38:10, 38:14, 59:16, 64:6, 82:11, 103:6, 117:18 wants 45:25, 46:11 warm 26:12, 37:2 wash 61:8 washing 72:6 waste 8:12, 9:16, 63:11, 63:15, 66:6, 92:11, 92:20, 96:9 wastewater 6:12, 9:23, 29:14, 33:17, 39:5, 39:22, 40:3, 40:15, 40:18, 47:17, 54:3, 57:16, 57:24, 58:4, 58:18, 61:24, 62:24, 64:14, 64:16, 65:18, 65:19, 66:4, 66:12, 66:17, 67:2, 67:10, 67:23, 68:4, 70:21, 70:22, 71:20, 77:2, 77:12, 78:22, 83:5, 83:10 watered 106:12 | waters 13:4, 27:15, 81:12, 81:12, 81:17, 82:18 watershed 8:23, 8:25, 9:2, 9:5, 84:23, 86:7, 89:6, 91:20, 94:11, 96:4, 96:23, 98:7 watersheds 91:12 we'd 71:22 we'll 11:4, 15:6, 24:1, 25:18, 26:3, 26:25, 27:11, 37:14, 38:11, 40:14, 48:23, 56:5, 98:1, 99:7, 101:4, 104:8, 109:14, 112:1, 119:9 we're 5:4, 8:4, 8:5, 10:5, 11:12, 11:20, 12:12, 15:1, 15:17, 15:18, 18:25, 19:4, 23:3, 23:22, 25:5, 25:20, 26:6, 26:10, 26:20, 26:20, 27:18, 27:21, 28:7, 29:17, 36:24, 37:2, 37:6, 38:19, 39:19, 40:24, 45:4, 45:6, 48:1, 49:1, 49:17, 51:19, 51:20, 52:12, 52:13, 52:15, 53:1, 56:13, 57:7, 57:10, 60:22, 64:21, 66:3, 68:18, 69:16, 72:20, 72:21, 73:2, 73:8, 75:15, 75:16, 77:10, 81:17, 83:15, 83:17, 83:19, 83:24, 85:5, 86:23, 88:1, 89:16, 90:22, 93:3, 94:25, 96:22, 98:4, 98:22, 99:12, 99:13, 99:14, 99:19, | 101:16, 102:2, 102:4, 102:6, 103:1, 104:12, 104:13, 105:13, 106:18, 107:14, 108:1, 108:20, 109:2, 109:6, 111:22, 112:19, 119:11 we've 2:5, 5:21, 5:23, 5:23, 7:16, 7:17, 10:21, 11:14, 20:22, 21:8, 21:9, 24:4, 29:4, 30:21, 32:8, 33:14, 40:9, 40:9, 45:3, 45:8, 46:19, 46:22, 48:17, 51:23, 52:2, 52:11, 54:19, 55:18, 58:3, 59:5, 59:25, 63:19, 68:5, 71:3, 71:7, 71:21, 71:21, 73:6, 76:2, 77:15, 81:13, 88:16, 89:2, 89:9, 90:10, 99:17, 99:18, 100:19, 100:20, 102:23, 104:14, 111:12, 111:19, 115:1 weather 30:25 web 69:17 website 89:18, 112:11 weed 100:8 weeds 100:15 week 4:8, 23:23 weeks 49:7 weighted 36:1 wells 75:9, 76:20, 77:8 WENDLAND 1:16, 4:1, 36:12, 36:20, 37:16 weren't 60:8, |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| | | | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| 105:25 west 87:19 western 20:9, 21:12, 38:23, 39:2, 39:14 wetland 83:7 wetlands 72:9, 72:14, 85:23 wetlandsd 72:11 what's 8:1, 11:15, 14:10, 19:16, 57:4, 57:12, 58:24, 67:11, 67:15, 67:18, 67:18, 68:6, 68:20, 73:1, 84:9, 85:14, 107:24, 108:2 whatever 58:20, 63:10, 72:25, 117:2 whereas 109:9 WHEREOF 120:15 WHEREUPON 2:1 whether 6:24, 58:19, 85:17, 112:21, 116:24 Whitefish 62:2, 62:5 whoever 98:12, 98:16, 114:23 whole 10:4, 21:22, 54:14, 69:1, 71:7, 76:12, 81:9, 100:9, 111:22, 112:11 wide 84:25, 94:11, 96:23 widely 101:19 WILLIAMS 1:16, 2:23, 3:7, 4:10, 4:14, 35:1, 35:19, 40:23, 46:13, 49:19, 50:3, 50:8, 50:12, 51:12, 52:18, 52:24, 55:6, 55:11, 64:20, 67:20, 67:25, 68:3, 68:13, 68:23, 69:7, 69:10, | 69:22, 70:1, 73:17, 74:2, 74:6, 74:19, 74:23, 75:2, 75:5, 80:21, 80:24, 82:13, 94:6, 96:6, 96:24, 98:19, 112:20, 114:17, 114:20, 115:3, 118:10, 119:14 willing 74:14 within 20:12, 24:13, 74:8, 77:10, 79:4, 79:8, 84:23, 87:25, 89:21, 90:17, 96:4, 96:5, 96:9, 96:25 WITNESS 120:15 woman 100:14 won't 28:2, 28:11 workload 35:6 works 54:12, 83:10 workshop 89:4, 90:6 worms 17:7 worse 57:9 worth 65:16 worthwhile 116:25 wouldn't 19:11, 58:20, 73:24, 74:12, 75:12, 78:19, 98:24, 113:18 WPCAC 1:4, 91:2, 104:8 WPCAC's 117:17 wrap 70:3 wrapped 27:21 wrapping 52:20 write-off 48:15 written 45:20 <hr/> Y <hr/> Yeah 55:24 yellow 62:3, 87:25 | Yellowstone 24:25, 25:8, 25:21, 25:24, 26:23, 34:2, 36:13, 36:18, 36:22, 37:14 yet 28:4, 56:10, 62:11, 62:13, 88:1, 95:1, 114:19 you'll 19:2, 21:24, 23:4, 26:2, 117:19, 118:21 <hr/> Z <hr/> zone 6:19, 6:24, 19:9, 21:23, 30:8, 47:7 zones 6:20, 20:13, 79:3 zoning 20:18 | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|